

AN APPRAISAL OF THE OCCUPATIONS OR LIFE-CAREER COURSE

BY

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H. C. H.

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CHAPTER I

LACK OF MEASUREMENT OF IMPORTANT OUTCOMES CLAIMED FOR OCCUPATIONS OR LIFE-CAREER COURSE

1. IMPORTANCE ATTACHED TO THE LIFE-CAREER OR OCCUPATIONS COURSE

Literature on guidance stresses importance of course. The occupations or life-career course is held in high regard by practically all of the specialists in the field of guidance. Brewer has written that "There is no force which has so far been developed which has quite the effectiveness and possibilities as has the public school course for the study of vocations . . . the study of occupational opportunities and procedures as carried on in the life-career class offers a more immediate means of spreading enlightenment and promises a greater effect throughout the occupational life of the individual . . . It can furnish a place for discussing the characteristics which make for success, the possibilities of cooperation, the problems involved in each of the main groups of occupations, and the underlying causes which are bringing about changes and development."¹ Buchwald was likewise reflecting confidence in the potentialities of the course when she declared that ". . . it is essential that a definite place in the schedule be given to a class in occupations . . . There should be a definite course of study which provides for the orientation of the newcomers in the school, and the study of educational opportunities; which acquaints children with the many ways in which people earn a living . . . ; which presents methods of studying an occupation so that students can make a more intelligent choice of a life work . . . In addition to these items, the class in occupations is a place for group guidance, where the children are given information on the basis of which they may more intelligently choose a course of study, and . . . a further course or school."² Wardner indicated wide acceptance of the possibilities of the life-career when he pointed out the fact that "The importance of this study has long been recognized and in many large cities has become an

¹Brewer, John M. "Vocational Guidance Through the Life-Career Class." *School and Society*, VI, 541-545 (Nov. 10, 1917).

²Buchwald, Leona C. "In the Class in Occupations," *Vocational Guidance Magazine*, V, 275-276 (March 1927).

integral part of the school curricula In many cities the study of occupations is a required subject, usually in either the eighth, ninth, or tenth grade. Its value is unquestioned."³

Further mention of the need and probable value of the life-career course is made in the volume of the White House Conference Report devoted to the problems of guidance: "The common and necessary facts about educational opportunity and occupational life are so numerous that to repeat them in a succession of personal interviews is wasteful of time. Further, and more important, classroom instruction and discussion promote the development of that wisdom, those methods of study, those attitudes which help the young person to plan and manage his own career. To secure these advantages there must be room in the curriculum for classes in vocational and educational guidance."⁴

Course widely adopted. Slightly more than a third of the nearly four hundred secondary schools canvassed by Koos and Kefauver in a recent study reported that the course was included in their respective offerings.⁵ These investigators found that nearly two-thirds of the junior high schools studied reported the course.⁶ In a canvass made in connection with the work of the White House Conference it was discovered that 105 out of 135 cities studied (78 per cent) were maintaining separate classes for the study of occupational and educational information.⁷ If these findings be typical of the country at large, it is evident that the life-career or occupations course has been introduced into several thousand secondary schools since the first textbooks in this field appeared less than twenty years ago.

Course not limited to occupational materials. Although quite commonly called "Occupations" or "Vocations," this course not infrequently treats of a wider range of items than either of these terms would suggest. Maverick believes that the course should provide for the "Study of educational opportunities: Here we shall naturally em-

³Wardner, Charles A. "How to Teach Occupations in the Small City High School," *Vocational Guidance Magazine*, V, 257-259 (March 1927).

⁴White House Conference on Child Health and Protection, Sec. II: Education and Training, Committee on Vocational Guidance and Child Labor, *Vocational Guidance*, p. 140. The Century Co., 1932.

⁵Koos, L. V., and Kefauver, G. N. *Guidance in Secondary Schools*, p. 71. The Macmillan Company, 1932.

⁶*Ibid.*, p. 71.

⁷White House Conference on Child Health and Protection, Section III: Education and Training, Committee on Vocational Guidance and Child Labor. *Op. cit.*, p. 140.

phasize our own school, the meaning of the courses and the curricula, and the vocations to which they lead, the opportunity offered in the school for trying out the student's abilities in several directions and for clarification of his vocational objective. . . . We should, of course, study other local schools with the conditions of admission and their special offerings. We must consider the higher schools. . . . Likewise, . . . we find an opportunity to reduce and redirect in tremendously effective fashion the unreasonably high ambitions of a boy who regularly fails in his studies, or is otherwise incapable of carrying college work It may confidently be expected that the class in occupations . . . will help to bring about a situation in which each pupil on leaving school will . . . achieve conscious, purposeful self-direction."⁸ Spanabel proposes that the course should, among other things, "stimulate and encourage interest in further education."⁹ Teeter presents seventeen aims for the course.¹⁰ His list, like that suggested by Maverick, includes items suggestive of a program of guidance more broadly conceived than that ordinarily referred to as "vocational guidance." Stuart and Morgan, in discussing the purposes of the life-career course as taught in the Arsenal Technical High School, also suggest tasks outside those usually thought of as "vocational guidance;" namely, "To guide the pupil to the discovery of his abilities by all available methods and devices," "To guide the pupil on the basis of his own information to a choice of a curriculum which will best serve his individual needs," and "To offer opportunities for discussion of important personal problems of boys and girls for which there is no opportunity for discussion elsewhere."¹¹ Further, the 1930 Committee on the Revision of the Principles of Vocational Guidance recommended that "In such classes the student should gain an acquaintance with the school unit in which he is, and with the forms of high education . . ." and that "Counselors teaching the class in occupations should study the educational offerings of the community through its schools, museums, art galleries, libraries,

⁸ Maverick, Lewis A. "The Class in Occupations," *School and Society*, XVI, 348-351 (Sept. 23, 1922).

⁹ Spanabel, E. E. "Methods of Presenting Vocational Information to High School Pupils," in Frederick J. Allen's *Practice in Vocational Guidance*, p. 47. McGraw-Hill Book Company, 1927.

¹⁰ Teeter, Verl A. *A Syllabus on Vocational Guidance*, pp. 1-3, The Macmillan Company, 1928.

¹¹ Stuart, Milo H., and Morgan, DeWitt S. *Guidance at Work*, pp. 39-40. The McGraw-Hill Book Company, 1931.

etc., in order to enable children and adults to use these opportunities in preparation for a vocation or for further school or college training."¹²

II. INVESTIGATIONS OF OUTCOMES OF THE COURSE

Investigation by Jessup. In spite of the rather widespread popularity of the life-career or occupations course and of the high hopes generally held for it by guidance workers, very little has been done by way of attempting to discover the extent to which the various desired outcomes of the course have been realized. Of the very small number of which some published report is available, the study by Jessup¹³, though somewhat fragmentary in that it concerns itself with only one of the major outcomes claimed for the course, is easily the most comprehensive. He attempted to arrive at an evaluation of the course by measuring the amount of occupational information gained by ninth-grade students in a ten-week course. A modified form of Brewer's test of occupational information was given to the students at the beginning and again at the conclusion of the course. The gains made were so slight that Jessup was led to conclude that the teaching of a course in occupations does not impart enough vocational information to justify itself.¹⁴ The ninth-grade students made a median score of 39.7 out of a possible score of 55 at the beginning of the course and 44.2 at the close. The largest increase was made by pupils with intelligence quotients of 120 and above.¹⁵

Investigations by Kefauver and Patterson. Two other studies of the occupations or life-career course will be mentioned before an attempt is made to describe the present investigation. Both have to do with its effects upon the vocational plans of students. Kefauver found that the influence of the course was to reduce the proportion with a vocational choice from 56.7 to 43.3 per cent or 13.4 per cent.¹⁶ Patterson found that 42.5 per cent of a graduating class of 134 students who did not have a course on occupations were without plans at the

¹²"Report of the Committee on the Revision of the Principles of Vocational Guidance." Vocational Guidance Magazine, Vol. VIII, p. 229 (February 1930).

¹³Jessup, Andrew S. Measuring the Value of a Course in Occupations in the Ninth Grade; unpublished master's thesis. University of Colorado, 1926. 54 pp.

¹⁴Ibid. p. 26.

¹⁵Koos, L. V., and Kefauver, G. N. Op. cit., p. 74.

¹⁶Koos, L. V., and Kefauver, G. N. Op. cit., p. 74.

time of graduation from high school. Of the 153 graduating the following year who had a semester course on occupations in the ninth grade, only 13.8 per cent were without vocational plans.¹⁷

III. THE NEED FOR FACTUAL STUDY

Values widely accepted without measurement. The widespread adoption of the life-career or occupations course by secondary schools in all sections of the country during the last one and a half decades represents an attempt to provide various types of important guidance services for students. Because of the critical importance of these services, the guidance worker should attempt to discover whether or not these hoped-for outcomes are actually being achieved. While there is undoubtedly an inclination in many quarters to share with the writers quoted above a large measure of confidence in the potentialities of the course, the guidance worker should not, in fairness to the students in his care, permit himself to assume that these services are being satisfactorily provided for them through the activities of the occupations course as now organized without evidence of a more objective type than that supplied by these statements of confidence or by the fragmentary studies reviewed above.

Types of measurement. In attempting any such appraisal of the life-career course there is a variety of types of inquiry which might be made. One such would be an analysis of the various more important factors or items involved in a given teaching-of-occupations situation; such as, for example, training of the teacher, methods of instruction, printed and other materials of instruction, objectives striven for, and the like, with the recommendations relative to these items which are to be found in the literature of guidance. Such an inquiry would supply some basis for concluding that a given teaching situation might or might not be expected to yield satisfactory results.

While such a procedure would undoubtedly be of real value, more importance can be attached to some attempt to determine to what, if any, degree the students themselves are actually affected by the experiences of the life-career course. Obviously, it is only by making a study of this description that one can ascertain actual effects of such courses.

¹⁷Koos, L. V., and Kefauver, G. N. Op. cit., p. 75.

CHAPTER II

THE PLAN OF INVESTIGATION OF OUTCOMES

I. THE SITUATION IN PITTSBURGH FAVORABLE FOR
MEASUREMENT OF OUTCOMES

The Pittsburgh situation. For several years previous to the school year of 1930-31 the occupations or life-career course was offered as a one-semester elective subject in the ninth grade in the Pittsburgh schools. In this grade, all Pittsburgh students during the period of time indicated had a free choice between this course and one of similar length in general science. This fact of free election made the Pittsburgh situation an unusually promising one in which to study the effectiveness of the life-career or occupations course.

The groups selected. In 1931-1932, randomly selected groups of students were studied in the Allegheny and Schenley High Schools in Pittsburgh. Students from all grades of the senior high school were included in the Allegheny group, while, because of administrative difficulties, only tenth and eleventh grade students were studied in the Schenley High School. These senior high school students, 641 in number, were divided into two groups. In one group, hereinafter referred to as the "life-career" group, were included the 391 combined tenth, eleventh, and twelfth grade students who had had the life-career or occupations course in the ninth grade. In the other group,

TABLE I

DISTRIBUTION OF LIFE-CAREER AND NON-LIFE-CAREER STUDENTS
ACCORDING TO GRADE AND SCHOOL

GRADE	LIFE-CAREER			NON-LIFE-CAREER			TOTAL		
	Alle-gheny High School	Schen-ley High School	Total	Alle-gheny High School	Schen-ley High School	Total	Alle-gheny High School	Schen-ley High School	Total
10	88	58	146	32	87	119	120	145	265
11	84	72	156	30	64	94	114	136	250
12	89	....	89	37	....	37	126	.....	126
Total	261	130	391	99	151	250	360	281	641

hereinafter referred to as the "non-life-career" group, were placed the 250 combined tenth, eleventh, and twelfth grade students who had elected general science in the ninth grade and who, consequently, had

never had any contact with the life-career or occupations course. Other than for the experience in this course, these students had had identical opportunities for guidance service. These life-career and non-life-career groups were then compared on a number of items associated with desired outcomes of guidance.

Procedures followed and techniques of measurement employed. These 641 students were canvassed with a battery of tests and questionnaires designed to yield information relative to the extent to which the various specific objectives of guidance had been realized. The Kefauver-Hand list of objectives, the most comprehensive yet made available, was employed for this purpose. The nucleus of this comprehensive list, which includes over 50 specific objectives, was derived from a thorough canvass of the literature of guidance to discover what outcomes the writers in this field believed should be expected to result from the guidance service. To the desired outcomes thus collected were added certain objectives not appearing in the literature which it was believed should be included in a comprehensive program of guidance. The extended list was then submitted for criticism to more than a score of individuals prominent in guidance work. The suggestions thus secured were incorporated in a revised list which was then mailed out to a large number of officials directly or indirectly connected with the work of guidance on the secondary school level with the request that they indicate on a five-point scale the importance of each objective in an ideal program of guidance. The objectives which were considered by these workers to be of moderate, large, or very large importance are those around which the test materials and other techniques of measurement employed in this study were devised.¹

The battery of tests and other materials of measurement which was administered to the 641 Pittsburgh students who cooperated in the investigation included the Kefauver-Hand Test of Occupational Information, the Kefauver-Hand Test of Information Relative to False Guidance, the Kefauver-Hand Test of Educational Information, the Symonds-Block Student Questionnaire (Adjustment Test), and the Kefauver-Hand Questionnaire² in which were secured vocational, educational, social, health, and recreational plans, and reasons for a variety of choices and other decisions made by students.

¹ See Kefauver, Grayson N., and Hand, Harold C. An Appraisal of Guidance in Secondary Schools. (In preparation).

² On file in the office of the School of Education, Stanford University.

The major purpose, then, of the investigation described above, was to compare the life-career and non-life-career groups on the basis of the measures noted, to the end that there might be secured and made available to guidance workers some knowledge of the extent to which the experiences of the life-career or occupations course as developed in the schools of Pittsburgh are associated with achievement of guidance objectives.

II. VALIDITY AND RELIABILITY OF MEASURES

Measures consistent with guidance functions. All of the techniques of measurement employed in this study were submitted to over twenty specialists in the field of guidance with the request that they be examined to see whether or not the content comprehended might be considered to parallel that with which students should be made familiar if the guidance functions of the secondary school were to be adequately discharged. No item on which any serious question was raised by three or more of these individuals was included in the test or questionnaire in question. The techniques of measurement employed may accordingly be considered to possess a fair degree of validity for the special purpose for which they were constructed or adopted; namely, that of measuring the extent to which various of the outcomes of guidance have been achieved.

Reliability of measures employed. Data are available as to the reliability of nearly all of the instruments of measurement employed. The Symonds-Block Student Questionnaire has been found to possess a reliability of $.83 \pm .03$.³ The coefficient of reliability for the tests employed in the present investigation are as follows: Kefauver-Hand Test of Occupational Information, $.93 \pm .01$; Kefauver-Hand Test of Information Relative to False Guidance, $.73 \pm .02$; Kefauver-Hand Test of General Educational Information, $.69 \pm .02$. Actually, certain sections of the Kefauver-Hand Questionnaire were also tests concerning various types of information. The reliability of each of these tests is given below: Names of Curriucums, $.43 \pm .05$; Chief Purposes

³ See "Manual of Directions for Student Questionnaire," Bureau of Publications, Teachers College, Columbia University.

of Curriculums, $.44 \pm .05$; Prerequisites for High School Subjects, $.61 \pm .03$; Subjects Required for High School Graduation, $.80 \pm .02$; Counseling Service Available in the High School, $.77 \pm .02$; Names of High School Subjects Giving Training Related to Certain Civic and Social Problems, $.91 \pm .01$; Names of High School Subjects Giving Training Related to Certain Leisure-Time Activities, $.90 \pm .01$; Identity of School Health Workers, $.83 \pm .01$; Types of Health Service Available to Students, $.69 \pm .02$. No data are available as to the reliability of those sections of the Kefauver-Hand Questionnaire which are concerned with the plans of students and with the reasons given by students for their various plans and decisions.

III. SIMILARITY OF LIFE-CAREER AND NON-LIFE-CAREER GROUPS OF STUDENTS

Items in the comparison. Attention has already been directed to the fact that this study involves a comparison of 391 Pittsburgh senior high school students who had completed the occupations or life-career course in the ninth grade with 250 students from the same institutions who had not included this course in their respective programs of training. It was also pointed out that these two groups were to be referred to a "life-career" and "non-life-career," respectively, throughout the remainder of the pages of this volume.

Some effort will now be directed to the task of further describing these two groups of students. Only to the extent that they may be found to be similar in point of intelligence, home background, identity of formal educational experiences other than those of the occupations course, and the like, may one assume that whatever differences are revealed in their respective achievements of guidance objectives may be due to the fact that one group took advantage of the trainings afforded by the occupations or life-career course while the other elected not to do so.

The groups compared as to intelligence. The first comparison, that concerned with the relative numbers of students in each group with intelligence quotients in each of four levels of ability, is afforded in the materials presented in Table II.

TABLE II

PERCENTAGES OF STUDENTS IN EACH GROUP IN EACH OF FOUR
LEVELS OF INTELLIGENCE

Intelligence Quotient	Group Life- Career (391)	Non-Life Career (250)	Differ- ence*	Sigma of Differ- ence	Ratio
Below 90	7.4	14.8	-7.4	7.7	0.9
90-99	16.6	10.8	+5.8	7.6	0.8
100-108	23.3	25.2	-1.9	7.0	0.3
Above 108	52.7	49.2	+3.5	5.3	0.7
Mean I. Q.	106.2	104.9	+1.3	0.8	1.6

*In this and in subsequent tables the difference reported is always that between the life-career and the non-life-career groups. The plus sign indicates a difference in favor of the life-career group, and vice versa.

It is evident from an inspection of this table that the life-career and non-life-career groups are closely comparable as to intelligence. It will be noted that all ratios obtained by dividing the obtained difference by the sigma of the difference are less than 1.00. This may be regarded as evidence that the differences which were found to exist on each of the four levels of intelligence are all chance differences.

The groups compared as to sex. The question of the extent to which the proportions of boys and of girls are similar in the two groups of students is of significance in the present study. Data on this point are reported in Table III. The findings here reported show quite conclusively that girls exhibited a real tendency to elect the occupations

TABLE III

PERCENTAGE OF BOYS AND OF GIRLS IN EACH GROUP

SEX	Group Life Career (391)	Non-Life Career (250)	Differ- ence*	Sigma of Differ- ence	Ratio
Boys	41.4	65.2	-23.8	4.9	4.9
Girls	58.6	34.8	+24.0	6.0	4.0

or life-career course while the boys evidenced an equally real tendency to choose the alternative elective, which happened to be ninth grade general science. The size of the critical ratios, 4.0 and 4.9, respectively, precludes any possibility that the differences in percentages noted could be regarded as due to factors of chance. The two groups of students included in the present investigation are thus seen to be not comparable as to composition by sex. Because of this fact, many of the findings to be presented have been reported separately for the different sexes.

The groups compared as to place of birth. It is conceivable that the findings of such a study as the one described in this volume might be appreciably colored were disproportionate numbers of foreign-born students included in the two groups. Accordingly, information bearing on this point is given in Table IV.

TABLE IV

PERCENTAGES OF STUDENTS REPORTING CERTAIN FACTS
RELATIVE TO PLACE OF BIRTH

PLACE OF BIRTH	Group Life Career (391)	Non-Life Career (250)	Differ- ence	Sigma of Differ- ence	Ratio
In United States..	95.4	91.6	+3.8	2.1	1.8
Outside United States	2.3	2.0	+0.3	1.1	0.3
No reply	2.3	6.4	-4.1	1.6	2.6

That only chance differences as to place of birth exist between the two groups of students is clearly evident from an examination of the right hand column of Table IV. Very apparently, the life-career and the non-life-career students are closely similar on this point. In neither group did the proportion of individuals reporting a place of birth other than the United States exceed three out of a hundred.

The groups compared on basis of birthplace of parents. The next comparison to be discussed in this section, that concerning the place of birth of parents, is afforded by Table V in which are reported the percentages of students who indicated that both, only one, or neither of their parents were born in this country. None of the differences reported is statistically significant, as a scrutiny of the reported critical

TABLE V

PERCENTAGES OF STUDENTS REPORTING CERTAIN FACTS RELATIVE
TO NATIVITY OF PARENTS

STATEMENT RELATIVE TO NATIVITY OF PARENTS	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life- Career (250)			
Both parents born in U. S.	43.7	36.0	+7.7	3.8	2.0
One parent born in U. S.	13.6	12.4	+1.2	2.7	0.4
Neither parent born in U. S.	40.4	44.8	-4.4	3.9	1.1
No reply	2.3	6.8	-4.5	1.8	2.5

ratios will reveal. This is simply another way of saying that the two groups of students may be considered comparable in terms of the items upon which this comparison was based.

The groups compared on the basis of homes broken by death of parents. While students with foreign-born parents may experience certain difficulties of adjustment which do not vex those reared in more typically American homes, it is not improbable that the child from a home broken by the death of one or both parents is in a considerably more serious predicament. If this be true, it follows that the quality of the work done in school by such unfortunate individuals would be likely to suffer. These observations suggest the desirability of making inquiry as to the relative extent to which the life-career and non-life-

TABLE VI

PERCENTAGES OF STUDENTS REPORTING CERTAIN FACTS RELATIVE
TO DECEASE OF PARENTS

STATUS OF PARENTS	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life- Career (250)			
Both parents living.....	80.8	78.4	+2.4	3.3	0.7
Father not living	9.2	8.8	+0.4	2.3	0.2
Mother not living	7.9	9.6	-1.7	2.3	0.7
Neither parent living....	1.0	3.2	-2.2	1.2	1.8
No reply	1.1	0.0	+1.1	0.5	2.2

career groups included such students. Data bearing on this question will be found in Table VI. Only very small chance differences were found to exist between the two groups relative to the extent to which one, both, or neither parent had been reported deceased by the life-career and non-life-career students, respectively.

The groups compared on the basis of occupation of father. Another item relative to the status of the family which might color the findings of the present study is that of the occupation of the father. For example, were one group largely made up of the boys and girls with fathers in the lower level of the social and economic scale and the other largely comprised of the sons and daughters of professional men, many of the findings of the study might be due in large measure to this fact. The extent to which the male parents of the life-career and non-life-career students represented each of the various occupational classifications may be discovered by an examination of the materials of Table VII. Only small and statistically insignificant differences be-

TABLE VII

PERCENTAGES OF STUDENTS WITH FATHERS IN CERTAIN TYPES
OF OCCUPATIONS

CLASSIFICATION	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life- Career (250)			
Professional and proprietors	20.9	22.0	-1.1	3.3	0.3
Commercial and clerical	28.8	30.0	-1.2	3.7	0.3
Skilled trades	28.5	22.8	+5.7	4.6	1.3
Transportation, public and professional service	9.6	9.6	0.0	.....	.....
Common labor	5.0	7.6	-2.6	2.0	1.3
Other	0.8	0.4	+0.4	6.0	0.1
Occupation unknown	3.3	2.0	+1.3	1.3	1.0
No reply	3.3	5.6	-2.3	1.7	1.3

tween the proportions from each of the various occupational levels are to be noted. This means that the two groups of students are closely comparable on the basis of the comparison to which this section is devoted.

The groups compared on the basis of out-of-school work. Further evidence in support of the statement that the two groups of students came from homes of comparable economic status is afforded in the materials of Table VIII in which are reported the mean numbers of hours of wage-earning activities engaged in during the month previous to the date of this study. All of the differences noted may be attributed to chance. Were the students disproportionally drawn from the various economic levels, one would expect to find a real difference in the amount of wage-earning activity engaged in outside of school hours.

TABLE VIII
MEAN NUMBERS OF HOURS OF EMPLOYMENT DURING OUT-OF-SCHOOL HOURS REPORTED BY PUPILS FOR
ONE MONTH

	Life-Career (391)	Non-Life-Career (250)	Difference	Sigma of Difference	Ratio
Boys	1.4	1.6	—0.2	0.1	2.0
Girls	1.2	1.5	—0.3	0.2	1.5
Students below 100 I.Q.	1.5	1.8	—0.3	0.3	1.0
Students above 99 I.Q.	1.2	1.4	—0.2	0.1	2.0
Total	1.2	1.6	—0.4	0.3	1.3

The groups compared as to courses taken. The items or factors upon which the comparisons already discussed in this chapter were based are, with the exception of that concerning intelligence, probably of less significance from the point of view of their probable effect upon learning than the factor or item reserved for this section of the report. This last comparison, that concerning the proportionate number of units of work completed in the major subject matter fields, is presented in Table IX.

TABLE IX

PERCENTAGE DISTRIBUTION OF UNITS OF SUBJECT MATTER
COMPLETED

SUBJECT FIELD	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (351)*	Non-Life- Career (214)			
Commercial	13.1	13.2	—0.1	0.6	0.2
Creative Arts	8.0	6.9	+1.1	0.5	2.2
English	19.1	19.6	—0.5	0.7	0.7
Foreign Language	9.1	6.1	+3.0	0.5	6.0
Mathematics	13.5	14.0	—0.5	0.6	0.8
Natural Science	3.5	11.9	—8.4	0.5	16.8
Shop and Home Arts.....	9.4	14.9	—5.5	0.6	9.1
Social Studies	17.0	6.0	+11.0	0.5	22.0
Other Fields	7.6	7.5	+0.1	0.5	0.2

*Complete records were not available on all students.

In four of the subject matter fields included in the comparison there are statistically significant differences between the percentages for the two groups. The fields in which such differences were found were Social Studies, Natural Science, Foreign Language, and Shop and Home Arts combined. The differences noted in Social Science and in Natural Science are accounted for by the fact that the students who elected the occupations course, a social science offering, could not enroll in general science during the semester in which the life-career course was taken. Similarly, students choosing general science in the ninth grade were unable to take occupations. The life-career group had a significantly greater number of units in Foreign Language inscribed in their records while there was a real difference in favor of the non-life-career students in the proportionate amount of work done in Shop and Home Arts. So far as formal instruction in the high school is concerned, therefore, the two groups differed in that the non-life career students had had more contacts with the materials of Natural Science and of the Shop and Home Arts courses. This fact should be kept in mind as the findings reported in subsequent chapters are examined relative to their respective implications.

The groups closely comparable. With but two exceptions, the comparisons discussed in this section support the observation that the

life-career and non-life-career groups were closely comparable. No difference sufficiently large to be considered statistically or otherwise significant was revealed when the two groups were compared on the basis of intelligence, place of birth, birthplace of parents, broken homes, occupation of father, and amounts of out-of-school work reported. The two exceptions noted were those associated with sex and with identity of formal instruction received in high school. For some reason, a much larger proportion of girls than of boys elected the life-career course. Differences sufficiently large to be considered of probable significance to the present study were revealed in favor of the non-life-career group when the proportionate amounts of work done in the field of Foreign Languages were compared. It was noted, however, that closely similar amounts of work had been done in the Commercial, Creative Arts, English, Mathematics, and miscellaneous fields.

IV. SIMILARITY OF COURSE IN PITTSBURGH AND OTHER CITIES

Items in the comparison. At the outset of the report of the experimental investigation, it will probably be well to give some picture of the occupations or life-career course as it was offered in the Herron-Hill and in the Latimer junior high schools in Pittsburgh during the school years 1928-29, 1929-30, and 1930-31, the years in which the course was taken, respectively, by the tenth, eleventh, and twelfth grade life-career students included in the present study. Obviously, such a description would be helpful to guidance workers in other cities in coming to some decision as to the extent to which the findings of the present study can be generalized to other situations.

With this purpose in mind, every instructor who had handled one or more sections of the life-career course in the Herron-Hill or in the Latimer junior high school during one or more of the three years indicated was approached with a fairly detailed check list designed to yield the following types of materials descriptive of the situation:

1. Instructor's Experience and Training.
2. Objectives Striven for in the Course.
3. Textbooks and Supplementary Materials Used.
4. Procedures and Methods Employed.

This inquiry form was also employed to gather descriptions of a number of occupations or life-career courses in other cities and towns. Fifty-three such descriptions were supplied by occupations teachers from various communities in Minnesota, New York, Ohio, Pennsylvania, Rhode Island, Virginia, and Wisconsin. This was done in order that comparisons on the items included in the questionnaire might be made between the Pittsburgh situation studied and the composite description supplied by these fifty-three instructors. Such a comparison should be helpful in arriving at a more accurate conjecture as to the extent to which the findings of this study might reasonably be expected to duplicate themselves were similar investigations conducted in other cities and towns of the country.

Before the various items involved in this comparison are presented, however, it may be well to describe certain features of the Pittsburgh occupations course without regard for non-Pittsburgh situations. One section of the Pittsburgh Number of the National Vocational Guidance Magazine was devoted to a description of the life-career course in that city. The following quotation is from this source: "Since the choice of a vocation is the first step in the performance of one's economic activities it is the office of the school to aid toward an intelligent choice, based on a knowledge of the factors related to that particular vocation. Therefore, the course includes a study of vocational opportunities, both local and general. This is accomplished through observation, interviews, reading, pictures, films, and various other types of experience, including visits to manufacturing plants, stores, and so forth. Out of these experiences the pupil selects one occupation for special study.

"The study of the occupation is directed: (1) from the standpoint of the individual; (2) from its relation to the community; and (3) from its requirements, physical and educational.

"The pupils are also aided in checking their own abilities and opportunities against the requirements of the occupations which appeal to them, and are aided in studying the individual and the community means of overcoming existing difficulties,—provided choice seems well founded. If the pupil knows the occupation, its opportunities and requirements, and can check himself against these, he is in a position to choose intelligently." ⁴

⁴ Pittsburgh Number, National Vocational Guidance Magazine, pp. 203-204, IV (Feb. 1926).

In addition to these items, however, inquiry is almost certain to be raised concerning the textbooks and other printed instructional materials employed by the Pittsburgh occupations teachers. Those reported by these teachers are listed below in the order of the extent of use indicated:

Gowin, Enoch B., Wheatley, William A., and Brewer, John M. *Occupations*. Ginn and Company, 1923.

Pittsburgh, Pa. Board of Public Education. *Occupational Studies*, 1925-1929.

Giles, Frederick M., and Giles, I. K. *Vocational Civics*. The Macmillan Company, 1925.

Hughes, Roy Osgood. *New Community Civics*. Allyn and Bacon, 1924.

Holbrook, Harold L., and McGregor, Laura A. *Our World of Work*. Allyn and Bacon, 1929.

Davis, Frank G., and Davis, B. C. *Guidance for Youth*. Ginn and Company, 1928.

Hill, Howard C. *Vocational Civics*. Ginn and Company, 1928.

Lyon, Leverett S. *Making a Living*. The Macmillan Company, 1927.

Proctor, William M. *Vocations*. Houghton Mifflin Company, 1929.

Kitson, Harry D. *How to Find the Right Vocation*. Harper and Brothers, 1929.

Cooley, R. L., Rodgers, R. H., and Belman, H. S. *My Life Work*. McGraw-Hill Book Company, 1930.

Some mention should also be made of the methods and procedures employed by the Pittsburgh teachers in directing the learning activities of the occupations course. Those reported by these instructors are listed below in the order of the extent of use reported:

Individual reports given by students.

Group reports given by students.

Informal discussion.

Questions and answers on textbook.

Socialized class work.

Supervised study.

Life-career books kept by students.

Individual conferences between students and individuals other than the teacher.

Problem-project method employed.

Formal lecture by instructor.

Informal telling of stories, etc., by instructor.

Case studies made of real or hypothetical individuals.

Extemporaneous talks by students.

Contract assignments.

Moving pictures of industry.

Charts of promotion and organization in occupations.

Debates between members of class.

Talks by representatives from occupational groups.

Excursions to business and industrial plants.

Excursions to senior high schools.

Talks by representatives from senior high school.

Talks by representatives from business and industry.

Slides of business and industry.

Dramatization.

Experience of teachers. In attempting to determine whether or not the findings of any given experiment in a teaching situation could be generalized for other given teaching situations, inquiry should be made concerning the relative amounts of classroom experience possessed by the teachers involved. Results secured with a group of teachers who were thoroughly at home in the classroom would not be expected to resemble very closely those obtained in situations in which the instructors had had but a small amount of total teaching experience. Another, and probably more significant, item, so far as the present study is concerned, on which a question as to the comparability of the two groups of teachers should be raised is that of the extent to which the individuals of each group have typically become experienced in meeting the actual problems arising in the occupations or life-career course itself.

The results of a compilation of the answers of the two groups of teachers to the questions relative to total years of teaching experience and extent of experience with the occupations course itself are presented, respectively, in Rows 1 and 2 of Table X.

TABLE X

AMOUNTS OF CERTAIN TYPES OF EXPERIENCE AND TRAINING
REPORTED BY PITTSBURGH AND NON-PITTSBURGH
OCCUPATIONS TEACHERS

TYPE OF EXPERIENCE OR TRAINING	Pittsburgh Teachers (5)	Non-Pittsburgh Teachers (53)		Difference Between Pittsburgh and Non- Pittsburgh Means
	Mean	Mean	Sigma of Distri- bution	
Years of total teaching experience	11.2	13.1	6.9	—1.9
Years of experience in teaching occupations course	4.2	3.4	2.2	+0.8
Weeks of academic training beyond high school	174.0	149.9	40.8	+24.1
N u m b e r of courses in principles and prac- tices of guidance	1.8	2.5	1.7	—0.7
Number of courses in methods of teaching occupations	1.8	0.8	0.9	+1.0
Number of non-teaching job-experiences	3.6	2.5	2.5	+1.1

It will be observed that the mean years of total teaching experience for the non-Pittsburgh group (13.1) exceeded that of the Pittsburgh teachers (11.2) by nearly two years. This difference is probably of little or no significance, however, since it cannot be said that either group is without adequate teaching experience. Likewise, the two groups of instructors may be considered closely comparable in experience in teaching the occupations or life-career course, the means being 4.2 and 3.4 years for the Pittsburgh and non-Pittsburgh teachers, respectively.

Level of academic training. Other comparisons which should be made are those based upon the respective backgrounds of training possessed by the two groups of teachers under consideration. Of the questions relative to the various types of training experiences which are involved in this comparison, the one which probably comes first to mind is that concerning the general level of academic training possessed by the two groups. Obviously, the results reported for the Pittsburgh situation could not be generalized for the country at large were there large differences between the Pittsburgh and non-Pittsburgh occupations teachers on this score. Data bearing on this point may be found in Row 3 of Table X in which it is seen that the mean for the Pittsburgh teachers is considerably higher than that reported for the other group. The difference of over 24 weeks noted between the mean numbers of weeks of training beyond high school reported is sufficiently large to lead one to raise some question as to whether or not the non-Pittsburgh teachers could reasonably be expected to do work as effective as that of which the Pittsburgh teachers should, by virtue of formal training, be capable. If there be any direct positive relationship between length of formal training and effectiveness in handling the occupations or life-career course, one might reasonably expect that the Pittsburgh instructors would obtain results somewhat superior to those secured by the 53 teachers with whom they were compared. If, however, it be true that an increase in the amount of academic training above a certain level is not associated with an increase in effectiveness in teaching, the finding here reported may be of no significance to the present study.

Special training in the field of guidance. While it is important that the items already discussed in this chapter be considered in any attempt to generalize the findings of such an investigation as the one reported in this volume, they are probably of no greater significance than the two to be treated next. Both of these considerations are associated with the status of the teacher with regard to the amounts of special training taken in the field of guidance. Since most, if not all, of the major objectives striven for in the occupations course are at the same time those of the guidance program or service, it follows that, other things being equal, the teacher with the better grasp of the principles and approved practices of guidance should be the more effective in directing the activities of the occupations or life-career class. Thus

one might reasonably expect the teacher who had been trained in guidance courses and in courses dealing with the methods of handling the occupations class to be more effective than the individual who had not had these particular experiences.

Accordingly, each teacher was asked to give indication of all courses taken in the principles and practice of guidance and in the methods of teaching occupations. These data are reported in Rows 4 and 5, respectively, of Table X. Inspection of this portion of the table reveals the fact that, so far as contacts with the first named of these two types of special courses are concerned, the non-Pittsburgh group may be considered slightly better prepared. The mean numbers of courses in principles and practices of guidance reported were 1.8 and 2.5 for the Pittsburgh and non-Pittsburgh groups, respectively. With regard to the comparison based upon the extent to which college or university courses in special methods of teaching the occupations or life-career course were reported, however, it is apparent that the Pittsburgh teachers were appreciably better prepared. It will be observed that the mean number of such courses reported for this group (1.8) is more than double that for the non-Pittsburgh teachers. This would suggest that, so far as this particular item is concerned, one might reasonably expect somewhat better results of the Pittsburgh group.

Experience in non-teaching work activities. Although it is generally held, as suggested above, that much help can be gained from participating in the activities of courses of the types discussed above, no small proportion of the individuals interested in helping secondary school students through the providing of adequate guidance services believes that actual job-experiences in work activities other than teaching are of at least equal value in increasing the effectiveness of the guidance worker. "Obviously," we read in the White House Conference Report, "teachers of classes in occupations can profit in a special way by their own experiences in vocational life."⁵ If this be true for guidance workers in general, it would seem that such experiences should be particularly valuable to the teacher of the occupations or life-career course.

⁵ White House Conference on Child Health and Protection, Section III: Education and Training, Committee on Vocational Guidance and Child Labor, Vocational Guidance, p. 155. The Century Co., 1932.

Accordingly, the teachers were asked to indicate all such job-experiences which had been included in their respective vocational careers. Data relative to the number of different types of non-teaching work engaged in by each group are reported in Row 6 of Table X. The means reported were 2.5 and 3.6 for the Pittsburgh and non-Pittsburgh teachers, respectively. This finding suggests that, so far as this particular item is concerned, one might expect the non-Pittsburgh group to be somewhat more effective.

Objectives striven for in the occupations course. The materials for the last three comparisons presented in this chapter, those concerned, respectively, with the objectives striven for, the textbooks and other instructional materials used, and the methods and procedures employed in instruction, are afforded in the data presented in Tables XI and XII. These comparisons will be discussed in the order named.

TABLE XI

RELATIONSHIPS, AS EXPRESSED BY COEFFICIENTS OF CORRELATION, BETWEEN MEAN RATINGS OF IMPORTANCE ASSIGNED TO OBJECTIVES, BETWEEN MEAN INDICES OF EXTENT OF USE REPORTED FOR MATERIALS OF INSTRUCTION, AND BETWEEN MEAN INDICES OF USE REPORTED FOR TEACHING PROCEDURES BY PITTSBURGH AND NON-PITTSBURGH OCCUPATIONS TEACHERS

ITEM	Coefficient of Correlation
Objectives striven for in the course	.57±.06
Textbooks and other instructional materials used.....	.55±.07
Procedures and methods employed in instruction.....	.75±.05

The Kefauver-Hand list of guidance aims or objectives⁶ discussed on page 7 of this volume was submitted to each teacher in the two groups with the request that each objective be rated in accordance with the following code:

Code Numbers

- 0 Not considered as an objective.
- 1 Considered to be of but *little* importance.
- 2 Considered to be of *moderate* importance.
- 3 Considered to be of *large* importance.
- 4 Considered to be of *very large* importance.

⁶ For a detailed statement of these objectives see Kefauver, Grayson N., and Hand, Harold C. *An Appraisal of Guidance in Secondary Schools.* (In preparation.)

The mean of the ratings assigned to each objective was determined for each group of teachers and the coefficient of correlation between the two series of means was then computed. This measure of relationship was found to be $.57 \pm .06$ (Table XI). The size of this coefficient of correlation warrants the observation that there was a marked tendency for the two groups of teachers to rate high the same objectives, and vice versa.

The ratings of importance assigned to the objectives of guidance were also accorded a second type of treatment. As indicated in Table XII the mean of the ratings for each group of teachers was computed. It will be observed that these measures of central tendency for the two

TABLE XII

MEAN RATINGS OF IMPORTANCE ASSIGNED TO OBJECTIVES, MEAN INDICES OF EXTENT OF USE REPORTED FOR MATERIALS OF INSTRUCTION, AND MEAN INDICES OF EXTENT OF USE REPORTED FOR TEACHING PROCEDURES BY PITTSBURGH and NON-PITTSBURGH OCCUPATIONS TEACHERS

ITEM	Pittsburgh Teachers (5)	Non-Pittsburgh Teachers (53)	Difference	Sigma of Difference	Ratio
Objectives striven for in the course	2.71	2.60	—0.11	0.08	1.4
Textbooks and other instructional materials used	0.04	0.04	.....	.....	...
Procedures and methods employed in instruction	0.81	0.84	—0.03	0.09	0.3

groups (Life-career, 2.71; Non-life-career, 2.60) were so closely similar that their difference must be regarded as due to the operation of chance factors. This finding and that reported in the preceding paragraph support the statement that both groups of instructors were apparently attempting to achieve somewhat closely identical goals in their teaching.

Textbooks and other instructional materials. While the dozen or more textbooks more commonly employed in connection with the occupations or life-career course have much common content, it cannot be assumed that their authors have all included the same topics, or given anything even approximating similar emphasis to those items which are treated in half or more of the books.⁷ It was a knowledge of these facts that prompted the inquiry as to the titles of the textbooks and other supplementary printed materials employed by the two groups of teachers from whom descriptions of the life-career or occupations course were secured.

In the form of inquiry each cooperating teacher was asked to employ the following code in indicating which of an extended list of textbooks and other printed materials had been used:

Code Letter

- | | |
|---|--|
| B | <i>Basic</i> text or material most heavily drawn upon. |
| H | <i>Heavily</i> drawn upon. |
| C | <i>Considerably</i> drawn upon. |
| L | <i>Little</i> drawn upon. |
| N | <i>Not</i> drawn upon. |

It was a relatively simple matter to substitute the values, 4, 3, 2, 1, and O for the code letters B, H, C, L, and N, respectively, and to compute the mean extent of use reported for each textbook or other printed materials by the two groups. The coefficient of correlation between these two groups of means was then computed and found to be $.55 \pm .07$ (Table XI). The mean of the total ratings assigned was also calculated for each group of teachers. An inspection of Table XII reveals the fact that these mean ratings were identical (0.04). Both of these findings support the conclusion that there was fairly close agreement between the Pittsburgh and the non-Pittsburgh teachers as to the textbooks and other printed materials employed.

Procedures and methods. The last comparison concerns the procedures or methods employed in directing the learning activities of the occupations or life-career course. The list of procedures and methods suggested by Lincoln⁸ was submitted to each cooperating

⁷ Kefauver, Grayson N., and Wiehoff, John R. "Analyses of General Books on Occupations," *Vocational Guidance Magazine*, VIII, pp. 355-365 (May, 1930).

⁸ Lincoln, Mildred E. *Manual for Teachers to Accompany Book on Occupations*, pp. 9-11. Ginn and Company, 1927.

teacher with the suggestion that the following code be used in indicating the extent to which each of the procedures or methods had been employed:

Code Letter

- | | |
|---|---|
| T | Employed <i>throughout</i> the course. |
| C | Employed to a <i>considerable</i> extent. |
| O | Employed <i>occasionally</i> . |
| N | <i>Not</i> employed. |

The ratings T, C, O, N were assigned the values 3, 2, 1, and 0, respectively, and the mean extent of use reported for each procedure by the two groups was computed. The coefficient of correlation between these two groups of means was found to be $.75 \pm .05$ (Table XI). A scrutiny of Table XII reveals the fact that the means of the total ratings assigned to all methods and procedures combined by the two groups of teachers were closely similar (Pittsburgh, 0.81; non-Pittsburgh, 0.84). These findings support the generalization that the two groups of teachers employed teaching procedures and methods which were closely similar in nature.

Conditions in Pittsburgh similar to those in other schools. To the extent that the sample of 53 instructors may be considered representative of the occupations or life-career teachers of the country, justification may be found in the data reported in this section for believing that the instructors who handled the course in the Herron-Hill and in the Latimer junior high schools during the three years covered by the present investigation were fairly representative of occupations teachers in other cities. Only chance differences were revealed when the two groups were compared on the basis of mean years of total teaching experience, mean years of experience in teaching the occupations course, mean number of college or university courses completed in principles and practices of guidance, and mean number of non-teaching job-experiences reported. Differences in favor of the Pittsburgh teachers sufficiently large to be of probable significance to the present comparison were observed between the mean numbers of college or university courses in methods of teaching occupations reported and between the mean numbers of weeks of academic training completed. It was noted that the two groups of teachers were attempting to achieve somewhat closely identical goals in their teaching, that there was fairly close agreement as to the textbooks and other printed materials employed, and that the teaching procedures reported were closely similar in nature.

CHAPTER III

COMPARISON OF STUDENTS WITH AND WITHOUT
OCCUPATIONS COURSE

I. GENERAL NATURE OF COMPARISONS

Life-career and non-life-career groups compared in a variety of ways. The general plan of the present investigation has already been characterized as that of drawing comparisons between two closely comparable groups of students, only one of which had had the occupations or life-career course. The materials of the study afford four general types of comparisons; namely, (1) that based upon the extent to which the life-career and non-life-career students possessed various types of information which the life-career course is presumably designed to impart, (2) that based upon the extent to which these students had formulated certain kinds of plans generally believed to be desirable, (3) that based upon the nature of the reasons given for the projecting of these plans, and (4) that based upon the status of the two groups as to adjustment. These four types of comparisons will be reported and examined for implications concerning the effectiveness of the occupations or life-career course.

II. THE GROUPS COMPARED AS TO INFORMATION

Informing students an important immediate objective. In the first few pages of this volume, the views of various writers in the field of guidance were quoted relative to the general scope and aim of the occupations or life-career course. A re-reading of these statements makes it evident that one of the major hoped-for outcomes of the course is that of imparting to students the various types of information necessary for the intelligent formulation of the numerous choices and decisions which students are called upon to make in planning their respective careers. In this section of the present chapter the life-career and non-life-career groups will be compared on the basis of the relative amounts of certain types of such information possessed by them.

A. Information About Occupations and Occupational Conditions

Nature of test of occupational information. In an earlier chapter mention was made of the fact that the Ketauver-Hand Test of Occupational Information was administered to the 641 students who

participated in the present investigation. A few words descriptive of the general nature of this test will enable the reader better to understand its scope. It is composed of fourteen sub-sections concerned, respectively, with the following types of information: proportion of workers engaged in each occupational classification of the census; number of men and women engaged in certain representative occupations in the local community; facts relative to general occupational conditions; nature of the work done in certain representative occupations (six sections are devoted to this type of information); intelligence level of the workers in certain representative occupations; extent to which certain representative occupations are open to men and women; extent to which the workers in certain representative occupations are exposed to occupational hazards; training or educational level of workers in certain representative occupations; and facts relative to the desirability of securing vocational training.

Differences between mean scores of life-career and non-life-career groups. The mean scores made by the two groups of students are reported in Table XIII.

TABLE XIII

MEAN SCORES MADE ON KEFAUVER-HAND TEST OF OCCUPATIONAL INFORMATION

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life- Career (250)			
Boys	322.0	322.0	0	.....	.....
Girls	329.5	317.6	+11.9	7.5	1.6
Students below 100					
I. Q.	309.5	295.5	+14.0	11.9	1.2
Students below 99					
I. Q.	334.5	332.7	+1.8	5.7	0.3
Total	328.0	321.0	+7.0	5.4	1.3

It will be noted that the mean scores made by boys, by girls, by students below average intellectual ability, and by those with intelligence quotients above 99 in each group, as well as those for the total number of life-career and non-life-career students are reported. Probably the most striking fact evidenced in the data of Table XIII

is that no difference found was sufficiently large to be considered statistically significant. Almost equally arresting is the finding that the boys who had not had the occupations course made a mean score identical with that reported for the male students who had had the experiences of this course. In all of the other comparisons afforded by the materials of Table XIII there are differences in favor of the life-career groups, but, as already pointed out, these differences are all negligible in size. Clearly, the data presented in this table would lead one to conclude that the experiences of the particular occupations or life-career courses studied had had little effect upon the students enrolled in them, so far as the acquisition of the particular types of occupational information included in the test used is concerned.

The data of Table XIII afford two other comparisons which are of value in yielding information concerning the apparent effectiveness of the life-career course with different groups or categories of students. The two comparisons to which reference is made at this point are those (1) between the size of the differences in mean scores reported for the students in the two intelligence classifications and (2) between the size of the differences in mean scores reported for boys and for girls. For the purpose of illustration, let us suppose that the difference between the mean scores made by students of above-average mentality is found to be so much greater than that between the mean scores for the lower intelligence group that a ratio equal to or greater than 3.0 is obtained when this difference between differences is divided by its standard error. In such a case, there would be justification for believing that the experiences of the life-career course had been more effective, so far as the particular item under consideration is concerned, with students of above-average ability than with those of lesser mental power. In like manner, one could determine whether or not the experiences of the course had been more effective with boys than with girls, and vice versa.

Upon entering Table XIII, the differences between the differences in the mean scores for the students of high and low mental ability is found, by appropriate computation, to be 12.2 in favor of the last-named group. It can be demonstrated that the standard error of this difference between differences is 13.2. The first-named value (12.2) divided by the second-named yields a ratio of 0.9. It is thus apparent

that the difference between differences (12.2) may be regarded as due to the operation of chance factors. Consequently, there is here afforded little or no basis for concluding that the life-career courses studied were significantly more effective, so far as the imparting of occupational information is concerned, with low-ability than with above-average-ability students, or vice versa. It will be noted (Table XIII) that the difference between the differences in mean scores reported for boys and for girls is 11.9. The standard error of this difference between differences is 11.6. Consequently, the ratio obtained is 1.0. The fact that this value is considerably less than 3.0 warrants the observation that there was no real difference between the apparent effectiveness of the course so far as the particular item (occupational information) under consideration is concerned.

B. Types of Information Which Should Be Considered in Choosing an Occupation

Knowledge of factors to be considered in choice of occupation considered important. Another comparison between the two groups of students relative to occupational information of a somewhat different type is made possible by the fact that all cooperating students were asked to list what they considered to be the most important types of information which should be considered in making an intelligent vocational choice. Such information is considered by many individuals to be of more importance than that covered by the test of occupational information. For example, the author of one of the latest textbooks for use in the occupations or life-career class has largely so selected and organized his materials that students may be led to formulate "habits of thinking about occupations"¹ which are presumably to take account of information of this type.

A knowledge of the items which it is generally believed should be considered in the formulation of a vocational choice may be gained from an examination of any one of a number of textbooks now available for use in the occupations or life-career course.² The outline for use in

¹ Kitson, Harry Dexter. *I Find My Vocation*, p. 8. McGraw-Hill Book Company, 1931.

² See especially Gowin, Enoch B., Wheatley, William A., and Brewer, John M. *Occupations*, pp. 98-100. Ginn and Company, 1923; Holbrook, Harold L., and McGregor, Laura A. *Our World of Work*, pp. 337-338. Allyn and Bacon, 1929; Kitson, Harry D. *I Find My Vocation*, pp. 57-59. McGraw-Hill Book Company, 1931; Myers, George E., Little, Gladys M., and Robinson, Sarah A. *Planning Your Future*, pp. 42 and 319-320. McGraw-Hill Book Company, 1930.

studying an occupation suggested by Kitson is presented below:

“Conditions of Work:

What are the duties one performs in the occupation?

What are the divisions or separate fields in the occupation?

What is the job in which one usually begins?

What are the steps through which one advances to higher positions?

What are the hours of work?

Is the work seasonal?

If so, what are the busy months; the slack months?

Are there any particularly unhealthy features about the work?

Are there any immoral or unethical features?

How many persons are engaged in the work?

Is the occupation overcrowded?

Is it likely to grow?

Is it unionized?

What is the best way to get a job in this field?

Requirements:

How old must one be to enter the occupation?

Are there any special requirements as to height, weight, strength, etc.?

Are any of the special senses particularly involved?

What personal traits are most often mentioned in connection with the occupation?

Is the activity involved chiefly mental or physical?

Does it require more than average intelligence?

Is it predominately social—that is, does it require one to deal largely with people; if so, with what class of people?

How much general education is necessary?

What kind of special training is needed?

How long a time is required for special training?

Where can it be obtained: how much in educational institutions; how much on the job?

How much will it cost?

Rewards:

On what basis is a worker paid in this occupation: by the hour, piece, day? How often is the salary paid?

How much can one earn by overtime work?

Is a bonus paid?

How much is the average pay: on a beginner's job; at later stages of advancement?

How much might one expect to earn after ten years of service in the occupation?

Are there provisions for sick benefits, profit-sharing, pension, workmen's compensation?

How much vacation is given with pay?

What are the chief rewards of a nonfinancial nature?"³

In addition to this list of items, Kitson has pointed out that "Surely one should not choose a type of work that is distasteful to him."⁴ He also suggested another item for consideration in the choosing of a vocation when he observed that "Some occupations furnish opportunity for social preferment."⁵

Differences between life-career and non-life-career groups. The proportions of the students in each group mentioning each of the various types of information as a desirable basis for choosing an occupation are shown in Table XIV. All but two ("Family influence" and "Vacations") of the twenty items mentioned by the students are comprehended by the list which Kitson proposes for consideration (Table XIV). In only three of the twenty types of information listed were there statistically significant differences between the proportions of life-career and non-life-career students making mention of the items. All of these differences were in favor of the life-career group. The items on which significant differences were noted are those associated with questions as to the healthfulness of working conditions, the social status of the workers, and the amount and type of training required. Of the remaining 18 items on which only chance differences between the two groups were revealed, two, those concerning salary and enjoyment in the work, were mentioned by sufficiently greater proportions of the life-career students to yield a ratio of 2.9 in both cases when the differences between the percentages reporting the items were divided by their respective standard errors. These differ-

³ Kitson, Harry D. *I Find My Vocation*, pp. 57-59. McGraw-Hill Book Company, 1931.

⁴ *Ibid.*, p. 45.

⁵ *Ibid.*, p. 55.

ences are thus very close to being statistically significant. Of the total of twenty differences to be observed in Table XIV, all but two were in favor of the life-career group. It should also be pointed out that a somewhat larger proportion of non-life-career than of life-career students supplied no answer to the request for a listing of the types of information which should be considered in choosing an occupation.

TABLE XIV

PERCENTAGES OF PUPILS WHO GAVE CERTAIN TYPES OF
INFORMATION AS DESIRABLE BASES FOR CHOOSING
AN OCCUPATION

TYPES OF INFORMATION	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life Career (250)			
No response	21.7	30.8	—9.1	3.6	2.5
Association with people	10.2	6.4	+3.8	2.2	1.7
Benefits gained	1.0	4.0	—3.0	2.0	1.5
Enjoyment	29.0	19.0	+10.0	3.4	2.9
Environment	6.1	4.0	+2.1	1.7	1.2
Family influence	0.8	0.4	+0.4	0.6	0.7
Fitness and ability.....	40.9	32.8	+8.1	3.8	2.1
Health	14.8	6.8	+8.0	2.4	3.3
Hours	12.5	10.4	+2.1	2.5	0.8
Interest	21.0	18.4	+2.6	3.1	0.8
Is field crowded	12.0	8.8	+3.2	2.4	1.3
Kind of work	10.2	9.2	+1.0	2.4	0.5
Occupational hazards	3.6	2.8	+0.8	1.4	0.5
Opportunities for ad- vancement	25.6	22.0	+3.6	3.4	1.0
Requirements	20.2	14.0	+6.2	2.9	2.1
Salary	47.6	36.4	+11.2	3.9	2.9
Social standing	11.3	2.8	+8.5	1.9	4.5
Steadiness of work	3.1	3.6	—0.5	1.5	0.3
Training	7.7	2.0	+5.7	1.6	3.5
Vacations	2.3	2.0	+0.3	1.2	0.3
Service to society	1.8	0.4	+1.4	0.7	2.0

If any sort of summary conclusion or blanket generalization is supported by the data reported in Table XIV, it is that the life-career students were apparently somewhat better informed than were the individuals of the other group relative to certain types of information

which guidance workers believe should be considered in making an intelligent vocational choice.

C. Information Relative to False Guidance

False claims made by charlatans. Another important type of information with which students should be equipped is that concerning the false claims made by certain individuals who hold out to students various alluring short cuts to fame and fortune. The general conviction of guidance workers relative to the falsity of such claims is reflected in the following statement which recently appeared in the Book Review section of the Vocational Guidance Magazine relative to a newly published book entitled "How to Choose Vocations from the Hands,"⁶ "This curious book is another evidence of the need for vocational guidance, and shows that no pupil should be allowed to go through the unior high school grades without being given . . . a warning in respect to false methods."⁷ There are individuals other than palm-readers, however, who profess the ability to settle once and for all the various perplexing questions which students face. Concerning such individuals, Kitson has written that "Some of them assert that they can do this by reading the bumps on your head (phrenology); . . . some by reading the stars (astrology); others claim to have a system which they call "character analysis."⁸

No significant difference between life-career and non-life-career groups in knowledge of false guidance. The Kefauver-Hand Test of Information Relative to False Guidance is designed to measure the extent to which students are able to recognize the various types of pseudo-guidance. As indicated in an earlier section, this test was given to all of the students who cooperated in the present investigation. The mean scores made by these pupils on this test have been reported in Table XV. Since none of the ratios to be observed in the right-hand column of the table exceeds 2.6, it is clear that only chance differences were found to exist between the mean scores reported. Of these negligible differences, all except that for students of lower mental ability were in favor of the life-career group.

⁶ Benham, William G. *How to Choose Vocations from the Hands*. G. P. Putnam's Sons, 1932.

⁷ See Book Review Section of *National Vocational Guidance Magazine*, X, 329 (April, 1932).

⁸ Kitson, Harry Dexter. *I Find My Vocation*, p. 117. McGraw-Hill Book Company, 1931.

TABLE XV

MEAN SCORES MADE ON THE KEFAUVER-HAND TEST OF
INFORMATION RELATIVE TO FALSE GUIDANCE

	Life- Career (391)	Group Non-Life Career (250)	Differ- ence	Sigma of Differ- ence	Ratio
Boys	52.1	49.0	+3.1	3.4	0.9
Girls	49.4	47.7	+1.7	1.9	0.9
Students below 100 I.Q.	46.1	48.3	-2.2	2.4	0.9
Students above 99 I.Q.	52.0	48.6	+3.4	1.3	2.6
Total	50.5	48.5	+2.0	1.1	1.8

Little justification can be found in the data of Table XV for believing that the experiences of the course had been more effective with one sex than with the other so far as the acquisition of information concerning false guidance is concerned. The difference between the differences in mean scores reported for boys and for girls was not sufficiently large to yield a ratio greater than 0.4. With regard to the other classification of students, however, the probability that the course was more effective with one group than with the other is much greater. A ratio of 2.1 representing a difference between differences in favor of the above-average students was obtained when this difference between differences was divided by its standard error.

From these observations, one would be warranted in concluding that, within the limitations of the test employed, the occupations courses studied had had practically no effect upon its students so far as the acquisition of information relative to false or pseudo-guidance is concerned.

D. Educational Information

General types of educational information needed by students. The life-career or occupations course is presumably designed to equip the student with the more important types of information needed to make reasoned decisions in planning his educational as well as his later vocational career. This would suggest that through the activities of the course students should make contact with such items of information as those concerning the identity and chief purposes of the various curricula of the school, the general content and aims of the various subjects offered, prerequisites for the various high school subjects of

study, subjects required for high school graduation, counseling services available in the school, the relation between the various types of school activities and certain lines of occupational and other types of endeavor or interest, general facts relative to college entrance requirements, etc.

Test materials designed to determine the amounts of such information possessed by students were administered to the 641 Pittsburgh pupils. The data yielded by these measurements will be reported in the immediately succeeding sections.

General educational information. The Kefauver-Hand Test of General Educational Information was one of the tests thus employed. It covers such materials as those associated with the main purposes of instruction in various fields of learning, relationships between various types of school activities and certain lines of occupational endeavor, general facts relative to college-entrance practices, general information about the nature and importance of high school training, and the like. The mean scores made on this test by the life-career and non-life-career students may be seen in Table XVI. Data are reported separately for boys, for girls, for students of low mental ability, and for those of higher intelligence.

No real difference between the differences reported for (1) students in the two intelligence classifications and for (2) boys and for girls was discovered, the respective ratios obtained being 1.8 and 0.7. These findings suggest that there was apparently but little difference in the effectiveness of the courses studied for the two sexes and for students of both low and high mental ability, so far as the possession of general educational information is concerned.

TABLE XVI

MEAN SCORES MADE BY STUDENTS ON THE KEFAUVER-HAND TEST
OF GENERAL EDUCATIONAL INFORMATION

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life Career (250)			
Boys	20.8	20.8	0	.....	.....
Girls	21.8	20.8	+1.0	0.4	2.5
Students below 100 I. Q.	20.5	19.0	+1.5	0.6	2.5
Students above 99 I. Q.	22.0	21.7	+0.3	0.3	1.0
Total	21.4	20.8	+0.6	0.3	2.0

Life-career and non-career boys made identical mean scores on this test. In all of the other categories, the life-career groups made slightly larger mean scores than did the comparable non-life-career groups. None of the differences, however, was sufficiently large to be statistically significant. In other words, training received in the occupations or life-career course apparently was not associated to any appreciable degree with a superior knowledge of such items of general educational information as were contained in the test employed.

Names and purposes of curriculums offered. Students adequately informed of the offerings of their respective schools would by definition be informed of the names and purposes of the various curriculums available to them. In one section of the Kefauver-Hand Questionnaire, by means of which many of the data of this study were collected, the student was asked to list the names of all curriculums offered in his school. It was possible to score these responses in accordance with a key supplied by the local school authorities and thus arrive at what has been called a "mean index of accuracy and completeness of knowledge."

Since this particular procedure was followed relative to a number of items to be discussed later, it is probably appropriate to insert a word of explanation at this point. Every response given by the student which agreed with the key supplied by the school was called a correct response. Every response not in agreement with the key was scored as an incorrect response. The total number of possible correct responses was determined from the key and the following formula evolved:

$$\text{Index} = \frac{\text{number of correct responses}}{\text{number of incorrect responses} + \text{number of possible correct responses}}$$

The mean index for any given group of students was determined by computing the arithmetic mean of the indices for each individual in that group.

The mean index of accuracy and completeness of knowledge possessed by each of the various categories of life-career and non-life-career students may be seen in Table XVII. Although all of the five comparisons afforded by the data of this table revealed differences in

favor of the life-career students, none was sufficiently large to yield a ratio greater than 1.3. That is to say, all of the very small differ-

TABLE XVII

MEAN INDICES OF ACCURACY AND COMPLETENESS OF KNOWLEDGE
RELATIVE TO NAMES OF CURRICULUM OFFERED

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (391)	Non-Life Career (250)			
Boys	58.0	55.0	+2.5	3.4	0.7
Girls	56.5	55.0	+1.5	3.3	1.5
Students below 100 I. Q.	53.2	47.0	+6.2	4.6	1.3
Students above 99 I. Q.	58.5	58.3	+0.2	3.0	0.01
Total	57.0	55.3	+1.7	2.3	0.7

ences noted might very easily have been largely due to the operation of chance factors. Clearly, the data reported in Table XVII picture no appreciable superiority for either of the two groups of students.

The ratios obtained when the difference between the differences in mean scores reported for boys and for girls and the difference between the differences in mean scores for students of low and of high ability when divided by their respective standard errors were 0.2 and 1.9. In other words, neither the differences in performance on the two intelligence levels nor the differences in performance by boys and by girls differed significantly.

Closely identical findings resulted from a comparison of the answers of the students set down in that section of the questionnaire which requested a statement indicating the chief purposes of each curriculum offered (Table XVIII). All but one of the differences reported reflected larger mean indices for life-career students, but again none of the differences was statistically significant. This means that neither of the two groups of students was appreciably better informed than the other relative to the purposes of the various curriculums included in the offerings of their respective schools. There was a marked difference, however, between the mean score reported for the life-career students of low mental ability (34.8) and that for the superior students (47.6) in this group.

TABLE XVIII

MEAN INDICES OF ACCURACY AND COMPLETENESS OF KNOWLEDGE
RELATIVE TO PURPOSES OF CURRICULUM OFFERED

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
Boys	44.2	42.3	+1.9	3.5	0.5
Girls	44.0	39.6	+4.4	4.0	1.1
Students below 100 I. Q.	34.8	39.8	-5.0	5.2	1.0
Students above 99 I. Q.	47.6	43.6	+4.0	2.8	1.4
Total	44.1	41.4	+2.7	2.6	1.0

When the differences between the performances of boys and of girls are compared it is seen (Table XVIII) that the latter differed more widely, the difference between these differences being 2.5. Since its standard error is 5.3, however, this difference may largely be due to the operation of chance factors. Although a difference of 9.0 is to be observed between the differences in the mean indices reported for students of the two levels of mental ability, the standard error of this difference (7.4) is sufficiently large to yield a ratio no greater than 1.2. It may be asserted, therefore, that the life-career courses studied were apparently as effective with one sex as with the other and only slightly more helpful to students of above-average intelligence than to those of lesser mental ability.

Knowledge of pre-requisites. Students who are not aware that certain subjects of study cannot be taken until one or more pre-requisites have been completed may not infrequently find it impossible to pursue their respective educational plans. Since this is a type of information with which students should be supplied in order that intelligent educational plans may be formulated, it would appear to fall within the scope of the life-career or occupations course. Consequently, an item requesting the names of the subjects, if any, pre-requisite to a list of representative school subjects was included in the questionnaire. Comparisons of the accuracy and completeness of the answers submitted by the students are afforded in the materials of Table XIX. An examination of this table will reveal statistically

CHAPTER XIX

MEAN INDICES OF ACCURACY AND COMPLETENESS OF KNOWLEDGE
RELATIVE TO NAMES OF PRE-REQUISITES

	Group				
	Life Career (391)	Non-Life Career (250)	Differ- ence	Sigma of Differ- ence	Ratio
Boys	41.0	33.0	+8.0	2.4	3.3
Girls	37.0	31.0	+6.0	2.2	2.7
Students below 100 I. Q.	27.8	23.6	+4.2	3.2	1.3
Students above 99 I. Q.	43.0	38.5	+4.5	1.8	2.5
Total	40.0	32.3	+7.7	1.7	4.5

significant differences for the life-career boys and for the total life-career group. Although the three remaining comparisons all resulted in differences in favor of the life-career students, all might be accounted for by the operation of chance factors. On the whole, however, we may regard the life-career students as appreciably better informed than non-life-career students relative to the pre-requisites for the sampling of the high school subjects listed in the questionnaire.

Large differences in both groups of students are to be observed in the mean indices reported for the students of low mental ability and for those of above-average mentality. For both the life-career and the non-life-career groups, the mean index for the students with intelligence quotients above 99 is a full 50 per cent greater than that reported for those of lesser mental ability. It may be asserted that, so far as knowledge of pre-requisites is concerned, the course was apparently as helpful to students of one sex as to those of the other, and also that it was probably about equally helpful to students on each of the two levels of intelligence reported. In support of this observation, it can be demonstrated that no ratio between either of the two differences between differences in mean indices and its standard error was greater than 0.6.

Subjects required for high school graduation. It is likewise apparent that students who do not know what subjects are required for high school graduation may experience difficulty in carrying out their respective educational plans. In order that the life-career and non-life-career students might be compared on the basis of this item of information, one section of the questionnaire contained a request for

the names of all subjects required for high school graduation of all students. The mean indices of accuracy and completeness of knowledge derived from the students' statements are shown in Table XX. Only chance differences between the indices for the various groups of students are to be noted. Apparently, the experiences of the life-career or occupations course studied had no appreciable effect upon the students enrolled in them so far as the acquisition of the particular item of information treated in this section is concerned.

TABLE XX

MEAN INDICES OF ACCURACY AND COMPLETENESS OF KNOWLEDGE
RELATIVE TO NAMES OF SUBJECTS REQUIRED FOR
HIGH SCHOOL GRADUATION

	Group				
	Life Career (391)	Non-Life Career (250)	Differ- ence	Sigma of Differ- ence	Ratio
Boys	33.2	38.0	-4.8	2.8	1.7
Girls	35.8	35.7	+0.1	2.4	0.1
Students below 100 I. Q.	29.6	32.0	-2.4	3.5	0.7
Students above 99 I. Q.	36.5	39.8	-3.3	2.3	1.4
Total	34.8	37.8	-3.0	1.9	1.6

It can be demonstrated that the life-career courses studied were about as helpful for one sex as for the other and about as effective for students of low ability as for those of above-average mentality. Neither difference between differences in mean indices was sufficiently large to yield a value in excess of 1.3 when divided by its respective standard error.

Counseling service available. Of the various purposes for which counseling service is provided in the high school, probably few are considered more important than those associated with the various types of help thus made available to students in the planning of their respective educational and vocational careers. Consequently, in harmony with its major function, the life-career or occupations course might reasonably be expected to inform students of the counseling services available to them. The relative extent to which information of this type was possessed by the two groups of students included in the present investigation may be determined from the data reported in Table XXI. An examination of the findings there recorded reveals

TABLE XXI

MEAN INDICES OF ACCURACY AND COMPLETENESS^o OF KNOWLEDGE
RELATIVE TO COUNSELING SERVICES AVAILABLE

	Group				
	Life Career (391)	Non-Life Career (250)	Differ- ence	Sigma of Differ- ence	Ratio
Boys	19.4	19.6	-0.2	1.4	0.1
Girls	18.5	16.0	+2.5	1.3	1.9
Students below 100 I. Q.	17.1	16.0	+1.1	1.9	0.6
Students above 99 I. Q.	19.4	19.1	+0.3	1.1	0.3
Total	18.9	18.3	+0.6	1.0	0.6

only very slight, and thus not statistically significant, differences between the various comparable groups of students for whom mean indices are reported. Clearly, no real advantage for either the life-career or the non-life-career students is to be observed.

Further examination of Table XXI reveals the fact that only relatively small differences between the differences in mean indices reported for the two sexes and for the two intelligence levels are to be noted. Neither of the two differences between differences is statistically significant, the ratios being, respectively, 1.5 and 0.4. The courses studied may therefore be regarded as about equally helpful to each of the various groups of students who were enrolled in it.

Other types of information. There are probably many other types of information with which students should be equipped in order that they may be able to make more intelligent plans and to realize to the fullest the various services and opportunities available to them. Such items of information as those associated with a knowledge of the subjects of study which afford training related to civic and social problems and to preparation for leisure time activities are clearly needed if the student is to plan an educational program which will prepare him for anything even approximating "whole" living. Other types of information helpful to students who would make the most of the services made available by the school are those concerning the identity of the health workers to whom pupils are privileged to go and the more or less exact nature of the various types of health services which are provided.

Comparisons between the two groups of students on the basis of the four types of information suggested are afforded in the data of Table XXII. It will be observed that all of the differences recorded are sufficiently large to be regarded as statistically significant. Two of the comparisons, those concerning a knowledge of the names of subjects giving training related to certain civic and social problems and to preparation for leisure time pursuits, resulted in differences in favor of the life-career students.

TABLE XXII

MEAN INDICES OF ACCURACY AND COMPLETENESS OF KNOWLEDGE
RELATIVE TO CERTAIN ITEMS OF INFORMATION

ITEM	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
Names of high school subjects giving training related to certain civic and social problems	10.2	8.4	+1.8	0.5	3.6
Names of high school subjects giving training related to certain leisure time activities	3.4	2.6	+0.8	0.2	4.0
Identity of school health workers to whom students are privileged to go	27.0	35.4	—8.4	1.5	5.0
Types of health service available to students....	40.5	48.1	—7.6	1.8	4.2

These findings in favor of the life-career course loom large in significance if it be true that "The task before us is of somehow getting our industrial civilization under control lest it destroy us, lest we be smothered by the excess of our own wealth, lest we continue this ridiculous situation where hungry, ragged, shoeless men are walking the streets while the warehouses are bursting with food, clothing, and shoes, and the people who produce them are going bankrupt because they can't sell them, and the men in the streets are starving and wretched because they can't use them"⁹ and if, in order to attack this

⁹ Bliven, Bruce, and Van Loon, Hendrik. "Must Teachers Sink Without a Struggle?" *Progressive Education*, IX, p. 5 (January 1933).

enormous task, it is essential for the secondary school to somehow "introduce youth to the understanding of our rapidly changing civilization,"¹⁰ and, further, "if in the days to come there will be more persons at rest than at work, and more leisure than labor; and that, as in the past, failure to prepare for these conditions will bring disaster . . . education for leisure . . . is . . . a fundamental problem affecting the welfare of the State and its perpetuity . . ." ¹¹

The two comparisons based, respectively, upon information relative to health workers and to health services, disclosed differences in the other direction. These last two findings suggest that content concerning health services and identity of health workers was probably rather effectively dealt with in the general science courses which were taken exclusively by non-life-career students.

Life-career and non-life-career students about equally well informed. The data presented in previous portions of the present section may be urged in support of the observation that in general no important advantage for either group of students was revealed. Of the even dozen comparisons afforded by the tests described in this section, only five resulted in statistically significant differences between the two groups, of which only three represented superior performance by life-career students. Of these three differences, though all were real in a statistical sense, only one was of sufficient size to be regarded as important. It should be pointed out, however, that on the remaining seven tests on which only chance differences between the two groups were revealed all but one were in favor of the life-career students. Of the total twelve differences noted, therefore, a full three-fourths were in favor of the students who had had the occupations or life-career course.

III. THE GROUPS COMPARED AS TO PLANS

Occupations or life-career course and plans of students. Many of the hoped-for outcomes of the occupations or life-career course are associated either directly or indirectly with attempts to induce students to make plans. Obviously, if students are to make the most of the

¹⁰ Rugg, Harold O. "Social Reeducation Through Education." *Progressive Education*, IX, p. 11. (January 1933).

¹¹ Russell, William F. "Leisure and National Security." *Teachers College Record*, p. 575, XXXIII (April 1932).

various opportunities open to them, reasoned plans of various kinds should be laid in order that there may be a minimum of purposeless activity. Among the plans which would appear to be helpful to students are those concerning selections of subjects of study and other learning activities, choices of recreational and physical or health activities, choices of colleges, universities or other schools for further study, selection of an occupational destination, and the like. The status of the two groups of students with whom this study is chiefly concerned will be examined relative to the extent to which the members of each group reported plans of the various types suggested above. Such an examination should yield further evidence as to the effectiveness of the course to the appraisal of which this volume is devoted.

A. Vocational Plans

Proportions of students with occupational choices. Although the proportion of students with a definite vocational choice may not safely be regarded as an item indicative of the effectiveness of the occupations or life-career course, it might be expected that a systematic consideration of occupations and the factors that should be considered in choosing an occupation would lead students to decide on the fields of their future careers. Such a comparison is afforded in the data of Table XXIII. Probably the most striking fact here revealed is that all of the differences reported are due to chance factors and that, consequently, none can be considered statistically significant. The percentages of life-career and non-life-career boys who reported vocational choices are the most closely identical (65.4 and 63.8 per cent, respectively), though a comparison of the proportions of girls reporting

TABLE XXIII

PERCENTAGES OF STUDENTS REPORTING A VOCATIONAL CHOICE

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
Boys	65.4	63.8	+1.6	5.0	0.3
Girls	80.8	78.1	+2.7	5.0	0.5
Students below 100 I. Q.	74.4	71.9	+2.5	7.0	0.4
Students above 99 I. Q.	74.4	67.7	+6.7	4.0	1.7
Total	74.4	68.8	+5.6	3.7	1.2

the selection of an occupational destination yielded a difference of only 2.7 per cent. Of the total groups, nearly three-fourths (74.4 per cent) of the life-career students reported such a choice, as compared with slightly less than seven-tenths (68.8 per cent) of the non-life-career group. In both groups, girls reported a vocational choice much more frequently than did the boys. The percentages of students with choices were closely comparable on the two levels of intelligence within each group.

The only generalizations afforded by the data of Table XXIII, therefore, are that (1) the experiences of the occupations or life-career course appear to have had no effect upon students so far as leading them to formulate occupational choices is concerned, and (2) that girls are apparently more certain of the respective vocational goals which they hope to attain than are boys.

B. Plans Associated With Educational Careers

Plans concerning graduation from high school... One of the possible effects of the occupations or life-career course upon the thinking of students is that which finds expression in the plans of students relative to continuing on through high school. Comparisons between the two groups of students with whom this study is concerned relative to plans of this type are afforded in the data of Table XXIV. It will be noted that none of the differences between the percentages of students planning to graduate from high school, planning not to complete their respective courses of study in the secondary school, or

TABLE XXIV

PERCENTAGES OF STUDENTS REPORTING CERTAIN PLANS RELATIVE TO HIGH SCHOOL GRADUATION

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
To graduate from high school	70.6	76.5	—5.9	3.6	1.6
Not to complete high school	3.3	2.0	+1.3	1.2	1.1
Undecided	26.1	21.5	+4.6	3.4	1.4

undecided relative to their plans in this regard, was sufficiently large to be statistically significant. This finding would lead one to believe that the experiences of the life-career or occupations course had had no appreciable effect upon the plans of students concerning high school graduation. Although the difference noted was found to be due to the operation of chance factors, it may be of interest to note that nearly 6 per cent more of the non-life-career group planned to complete high school, the respective percentages being 70.6 and 76.5. Less than 4 per cent of either group had definitely decided to drop out of high school.

Plans concerning choices of subjects and extra-curricular activities.

If students in the occupations or life-career course are encouraged to formulate educational plans, one might reasonably expect that boys and girls who had had the course would be more likely to have made choices of subjects of study and of extra-curricular activities for inclusion in their respective educational programs than would be the case among students for whom no provision had been made for stimulation of this type. A knowledge of the proportions of the students who reported plans of the two types suggested may be gained from a scrutiny of Table XXV. Here it will be observed that a difference 8.5 times its standard error in favor of the life-career group is revealed between the percentages (91.7 and 75.6, respectively) of students in the two groups who reported that they had chosen their

TABLE XXV

PERCENTAGES OF STUDENTS* REPORTING CHOICES OF SUBJECTS
OF STUDY AND OF EXTRA-CURRICULAR ACTIVITIES
FOR THE FOLLOWING SCHOOL YEAR

TYPE OF CHOICE	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (302)	Non-Life Career (213)			
Subjects of study chosen	91.7	75.6	+16.1	1.9	8.5
Extra-curricular activities chosen	35.8	36.6	—0.8	4.3	0.2

*Twelfth grade students were not included in this table.

subjects of study for the next school year. In other words, this is a statistically significant difference which may be considered indicative

of an effect of the course. With regard to the choice of extra-curricular activities, however, a very small and, consequently, chance difference in the other direction (the percentages are 35.8 and 36.6, respectively) is recorded.

Plans concerning leisure time and health activities for after-school life. If, as suggested earlier in this volume, the student is to be led to formulate plans comprehending the "whole life," some provision must be made to induce him to select the leisure time and health activities which hold promise of enjoyment and value for him. Some knowledge of the extent to which the life-career courses studied were effective in leading students to formulate plans of this type may be gained from an examination of the data of Table XXVI. Over four-fifths (82.0 per cent) of the non-life-career group indicated choices of leisure-time activities, while slightly less than two-thirds (65.7 per cent) of the life-career students reported such plans. The difference noted is 4.8 times its standard error, and hence may be regarded as a real difference. With regard to the other comparison afforded by the materials of Table XXVI, that concerning the extent to which choices of health activities were reported, only a chance difference in the percentages reported (life-career, 29.6; non-life-career, 27.2) is to be noted.

TABLE XXVI

PERCENTAGES OF STUDENTS REPORTING CHOICES OF LEISURE-TIME
AND HEALTH ACTIVITIES

TYPE OF CHOICE	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
Choice of leisure-time activities	65.7	82.0	-16.3	3.4	4.8
Choice of health activities	29.6	27.2	+2.4	3.5	0.7

Plans concerning colleges or universities. Probably every senior high school student gives some consideration to the question of whether or not he should include college or university attendance in his educational program. Comparisons on the bases of the extensiveness and definiteness of college-going plans between the two groups of students are afforded in the data of Table XXVII. Two observations

are warranted by these data: first, that a somewhat larger proportion (not statistically significant, however) of life-career students plan to

TABLE XXVII

PERCENTAGES OF STUDENTS REPORTING CERTAIN PLANS RELATIVE TO COLLEGE ATTENDANCE

PLAN	Group		Differ- ence	Sigma of Differ- Ratio ence	
	Life Career (391)	Non-Life Career (250)			
To attend some college or university, but with no decision as to par- ticular college	14.7	17.5	—2.8	2.9	0.9
To attend a particular college or university....	25.5	16.5	+9.0	3.0	3.0
Total planning to attend college	40.2	34.0	+6.2	3.9	1.6

go to college, and secondly, that an appreciably larger percentage of the same group have decided upon a particular college or university. In support of the first of these inferences, it may be noted (Row 3 of Table XXVII) that 34.0 per cent of the non-life-career students plant to attend college, while a number representing a proportion 6.2 per cent greater is reported for the life-career group. The percentage of life-career students who reported the choice of a particular college or university (25.5) exceeded that reported for the other group by 9.0. Since this difference is 3 times its standard error, we may regard it as a real difference.

Mental level of college-bound students. More important than either of the items discussed in the immediately preceding section, however, is the question concerning the mental ability of the students who have plans to go to college. Obviously, plans relative to college attendance made by students without regard to their respective levels of mental ability may be worse than no plans at all. Although conclusive data on the question are lacking, it is generally held that most students of low mental ability can profit but little from college or university training. Consequently, it is of interest to see whether or not the life-career or occupations course has apparently had any effect in leading students of low ability to see the inadvisability of planning

to go to college. Data bearing on this question are reported in Table XXVIII.

TABLE XXVIII
PERCENTAGES OF STUDENTS IN EACH QUARTER OF THE
INTELLIGENCE DISTRIBUTION WHO PLAN TO
GO TO COLLEGE

INTELLI- GENCE QUOTIENT	Group				Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career No.	%	Non-Life Career No.	%			
Below 90	10	34.2	7	18.9	+15.3	11.1	1.4
90-99	23	33.8	9	33.3	+0.5	11.0	0.1
100-108	34	37.4	18	28.6	+8.8	7.6	1.2
109 and above..	90	43.7	51	41.5	+2.2	5.7	0.4
Mean I.Q.		107.0		107.0	0	....	....

An examination of this table (XXVIII) reveals no statistically significant difference between the percentages of students in any of the four divisions of the intelligence distribution who plan to go to college. This finding is consistent with that revealed when the mean I.Q.'s of the two groups of college-bound students are compared and found to be identical (107.0). There is a marked tendency for the proportions of college-bound students to rise in each group as one proceeds from the lowest to the highest level of ability. This is in accord with the finding by Powers that the more capable students plan in larger proportions to attend college; if one may assume that the choosing of elective subjects preparatory to college is indicative of a decision to attend college, and vice versa.¹² Larger proportions of life-career students on each intelligence-level reported that they planned to attend college. From these observations it seems obvious that the experiences of the life-career courses studied did not make the students on the lower ability levels sufficiently aware either of the fact or of the significance of their respective capacities significantly to alter their plans relative to college attendance.

IV. THE GROUPS COMPARED AS TO NATURE OF REASONS FOR CERTAIN PLANS AND DECISIONS

The life-career course and the formulation of reasoned plans.

The observation that one of the major purposes of the life-career or

¹² Powers, S. R. "Intelligence as a Factor in the Election of High School Subjects," *School Review*, XXX, 452-455 (June 1922).

occupations course is that of attempting so to train students that they may more intelligently formulate their various plans and decisions would probably not be challenged by any guidance worker. Consequently, in any thorough-going attempt to appraise the life-career or occupations course there must be included some inquiry concerning the extent to which the various plans and decisions of the students may be considered to have been intelligently formulated. That this is an exceedingly difficult task, perhaps no one will deny. However, one possible way of learning something about the type of thinking which presumably took place in the making of the various plans or decisions is afforded by asking the student to tell why he chose or planned as he did. While it is recognized that in many cases the reasons given may have been rationalizations, there appeared to be no better way of getting some clue as to the thinking of the student. In this section will be reported the proportions of students who listed various reasons for certain plans and decisions which they had made. No reason not mentioned by ten or more students in either the life-career or the non-life-career group has been included in any table.

Reasons for choosing a particular occupation. Sixteen different reasons were mentioned by as many as ten or more of the students in one or the other of the senior high school groups when they were requested to tell why they had decided upon the particular occupations which they had named as their respective intended vocational destinations. A knowledge of the reasons given and of the proportion in each of the two groups who indicated each reason may be gained from an examination of Table XXIX. It will be observed that only two ("Family influence" and "Good occupation") of the 16 reasons listed are not comprehended by the list of items suggested by Kitson as desirable for the study of an occupation.¹³ It may be urged, therefore, that the remaining 14 may be regarded as acceptable reasons for the choice of an occupation. A careful glance at the extreme right hand column of Table XXIX is sufficient to disclose the fact that no difference between the percentages reporting any reason was sufficiently large to be considered statistically significant. Of the 16 more or less negligible differences noted, 11 indicated slightly larger proportions of life-career students. The

¹³See pages 31-32.

reasons associated with these nearly a dozen differences were those phrased as "Enjoy the work," "Good pay," "Fitted for the work," "Opportunity for advancement," "Good social status," "Opportunity

TABLE XXIX

PERCENTAGES OF STUDENTS WHO GAVE CERTAIN REASONS FOR CHOOSING A PARTICULAR OCCUPATION

REASON	Group		Difference	Sigma of Difference	Ratio
	Life Career (291)	Non-Life Career (172)			
Enjoy the work	57.1	53.9	+3.2	4.7	0.7
Interesting work	35.4	38.8	—3.4	4.5	0.8
Good pay	26.5	22.0	+4.5	4.1	1.1
Fitted for the work.....	18.0	14.5	+3.5	3.5	1.0
Opportunity for advancement	16.3	15.0	+1.3	3.2	0.4
Good social status	13.9	8.1	+5.8	2.8	2.1
Family influence	7.5	9.3	—1.8	2.7	0.7
Opportunity to serve	6.8	5.8	+1.0	2.3	0.4
Field not crowded	5.4	5.2	+0.2	2.1	0.1
Opportunity for self-improvement	3.0	7.0	—4.0	2.2	1.9
Healthful work	4.1	4.0	+0.1	1.8	0.1
Good occupation	2.0	7.0	—5.0	3.1	1.6
Good hours	3.7	3.5	+0.2	1.7	0.1
Steady work	3.7	2.3	+1.4	1.5	0.9
Short period of training	3.7	1.7	+2.0	1.5	1.3

to serve," "Field not crowded," "Opportunity for self-improvement," "Healthful work," "Good hours," "Steady work," and "Short period of training." All but two of these reasons will be recognized by persons familiar with the content of textbooks designed for the occupations course as closely identical to those urged for consideration by authors in this field.

"Interesting work," "Family influence," "Opportunity for self-improvement," and "Good occupation" were the reasons given by slightly greater proportions of life-career students. One of these ("good occupation") is so broad as to be almost meaningless, another ("family influence") does not reflect a reasoned choice of the type

desired by guidance workers, while the remaining two are perhaps almost universally regarded as intelligent reasons.

In spite of the advantage for the life-career students noted with regard to these negligible differences, however, probably the only conclusion which can legitimately be drawn from the data of Table XXIX is that the life-career courses studied in the present investigation apparently had little appreciable effect upon the students so far as leading them to formulate what guidance workers consider to be reasoned occupational choices is concerned.

Reasons for deciding to graduate from high school. Some idea as to whether or not the life-career course was instrumental in leading students to a better appreciation of the probable values inherent in the successful completion of a high school course might possibly be gained from a knowledge of the nature of the reasons given by life-career and non-life-career students for deciding to graduate from high school.

The acceptability of the reasons given might perhaps be determined by comparing them with the items concerning the probable values of high school attendance urged for consideration by the writers of textbooks designed for the occupations or life-career course. Since Lyon presents what is probably the most thoroughgoing treatment of materials of this type,¹⁴ excerpts will be drawn from his discussion of the values of high school training. He has pointed out that "It (the secondary school) can help us in planning to fit ourselves into the work of the world by giving us a much broader knowledge of the kind of world in which we live It can introduce us to all of the great sciences It can improve our ability to communicate and read It can prepare us for further work in any field that we may choose It can give us special knowledge and skill in some kind of work that leads directly to a job It can widen our circle of friends and make us acquainted with many persons who, as time goes on, will become important in the community and increasingly valuable and enjoyable to us as friends and associates High school graduation is required for admission to any college and will

¹⁴Kefauver, Grayson N., and Wiehoff, John R. "Analyses of General Books on Occupations," National Vocational Guidance Magazine, VIII, p. 359 (May 1930).

admit students to many professional schools." ¹⁵ It will be observed (Table XXIX) that all but two ("Family influence" and Lack of employment") of the seven reasons given by the students were suggested in the items proposed by Lyon. Scrutiny of the right-hand column of the table reveals the fact that all of the differences noted were due to the operation of chance factors; consequently, one is led

TABLE XXX

PERCENTAGES OF STUDENTS WHO GAVE CERTAIN REASONS FOR
PLANNING TO GRADUATE FROM HIGH SCHOOL

REASON	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (276)	Non-Life Career (191)			
To prepare for a vocation	65.9	66.6	—0.7	4.4	0.2
To prepare for college....	60.8	51.5	+9.3	4.7	2.0
To improve myself	56.2	48.9	+7.3	4.7	1.5
Like school	16.2	16.6	—0.4	3.4	0.1
Family influence	13.3	8.3	+5.0	2.8	1.8
Lack of employment	6.5	8.3	—1.8	2.4	0.8
To improve myself socially	4.7	6.8	—2.1	2.2	1.0

to conclude that, within the limitations of the technique of measurement here employed, the instruction received in the life-career courses studied apparently did not give the students enrolled in them any advantage over the non-life-career group in coming to a fuller appreciation of the probable values associated with high school graduation.

Reasons for choosing a particular course of study. A given course of study is presumably designed to serve some more or less peculiar group of students. For example, college-preparatory courses are set up to provide the educational experiences deemed of most worth to those going on to college, commercial courses are designed to prepare students to engage in commercial pursuits of various types, and the like. It follows, then, that if students made reasoned choices among the various courses of study information of this type would necessarily be considered by them in arriving at their respective decisions. Other

¹⁵ Lyon, Leverett S. *Making a Living*, pp. 576-577. The Macmillan Company, 1927.

items which one might reasonably expect to find considered in an intelligently formulated decision are those associated with the abilities and the interests of the student. Opinions in support of these observations may readily be found in the literature of guidance. Considerations similar to those mentioned above were suggested by Lyon when he wrote that the student should "Select those courses while in school that will be of most use to him in going on to the next higher step. . . . If he cannot go on, he should select those courses that will give him the most general knowledge about the work that he wants to undertake."¹⁶ Koos and Kefauver suggest that students should be led to choose curriculums or courses of study with regard for their respective interests, capacities, and future educational and vocational plans.¹⁷

Comparisons between the life-career and non-life-career groups on the basis of the nature of the reasons given for choices of courses of study are afforded in the data of Table XXXI. Here it is revealed that only one statistically significant difference between the two

TABLE XXXI

PERCENTAGES OF STUDENTS WHO GAVE CERTAIN REASONS FOR CHOOSING A PARTICULAR COURSE OF STUDY

REASON	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (340)	Non-Life Career (200)			
To prepare for an occupation	42.4	31.5	+10.9	3.4	3.2
To prepare for college....	32.6	43.0	-10.2	4.3	2.4
Like the course	15.3	20.5	-5.2	3.4	1.5
Course is interesting....	10.4	14.5	-4.1	2.9	1.4
Wide choice of subjects possible	13.5	7.0	+6.5	2.6	2.5
Affords general education	5.9	13.0	-7.1	2.7	2.6
Suitable for student not going to college	5.0	7.0	-2.0	2.1	0.9
Ability to do the work	2.9	8.0	-5.1	2.1	2.4
To improve myself	2.7	5.5	-2.8	1.5	1.9
Family influence	3.2	4.0	-0.8	1.7	0.5

¹⁶ Lyon, Leverett S. *Making a Living*, p. 591. The Macmillan Company, 1929.

¹⁷ Koos, Leonard V., and Kefauver, Grayson N. *Guidance in Secondary Schools*, p. 454, The Macmillan Company, 1932.

groups is to be observed. This difference resulted from the fact that a larger proportion of life-career students (the percentages were 42.4 and 31.5, respectively) indicated that they had chosen their respective courses of study in order "to prepare for an occupation." A slightly larger proportion of life-career students also listed "Wide choice of subjects possible." All of the other chance differences reported represented larger percentages for the non-life-career students.

If any generalization is supported by these findings, it is probably that the experiences of the life-career course apparently had little or no effect upon students in equipping them to make what guidance workers appear to consider reasoned choices of courses of study other than that of making them aware of the fact that most courses serve some vocational objective.

Reasons for deciding to go to college. Of the considerations which should probably be comprehended in a reasoned decision as to the worthwhileness of going to college, those associated with the ability of the student to do successful college work and with the vocational objective to be served by college attendance would perhaps receive prominent mention in most quarters. A question concerning finances might also be urged among others for inclusion in such a list of considerations. These observations suggest that some question concerning the reasons which college-bound life-career and non-life-career students gave for their respective decisions to continue formal education beyond high school might well be raised in the present appraisal. Information on this point is reported in Table XXXII.

TABLE XXXII

PERCENTAGES OF STUDENTS WHO GAVE CERTAIN REASONS FOR
DECIDING TO GO TO COLLEGE

REASON	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (157)	Non-Life Career (85)			
To prepare for an occu- pation	79.3	88.2	—8.9	4.7	1.9
To improve myself	51.0	46.8	+4.2	6.7	0.6
Like it	10.8	6.0	+4.8	3.7	1.3
To improve my social position	8.3	9.6	—1.3	3.9	0.3
To make myself more use- ful to society	1.9	13.0	—11.1	3.7	3.0

Examination of this table reveals the fact that a real difference in favor of the non-life-career group was found between the percentages of students who gave the reason "To make myself more useful." By far the major portion of the college-bound students in both groups indicated that they had decided to go to college "To prepare for an occupation," the percentages being 79.3 and 88.2, for the life-career and non-life-career students, respectively. The difference between these percentages is not sufficiently large to be considered statistically significant. Of the remaining differences, all three of which favor the non-life-career group and all of which are seen to be due to the operation of chance factors, none is in any way associated with the question of the respective abilities of the students or with the question of finances. The data of Table XXXII thus do not give one any valid reason for believing that the life-career students were in any way better prepared to make an intelligent decision with regard to the question of whether or not to decide to go to college than were those who had not had the occupations course.

Reasons for choosing a particular college. The more important items which students should consider in choosing a particular college or university have been pointed out by the authors of two of the more recently published textbooks for the occupation course: "With so many kinds of colleges to choose from, it is sometimes puzzling to know which to choose The question for you to answer is: Which will prove the most advantageous for you? In answering this question, you will need to take into account your choice of occupation, the location of the college, the courses it offers, the cost of obtaining it, its reputation, etc." ¹⁸ "Above all, strike for the institution that has the highest standing Naturally, you are interested in the amount of money required for training. Compute this carefully before you start." ¹⁹ Of the reasons given by students for their respective choices of colleges, only three were reported by as many as 10 students in either of the two groups. These reasons, in the order of the frequency with which they were listed, were "High quality of instruction," "Location of institution (presumably near home)," and "Institution offers the desired courses." (See Table XXXIII). These reasons

¹⁸ Myers, George E., Little, Gladys M., and Robinson, Sarah A. *Planning Your Future*, pp. 340-42. McGraw-Hill Book Company, 1939.

¹⁹ Kitson, Harry D. *I Find My Vocation*, pp. 144-145. McGraw-Hill Book Company, 1931.

were mentioned by 46.6, 22.2, and 20.0 per cent of the life-career group and by 39.0, 49.7, and 19.7 per cent of the non-life-career

TABLE XXXIII

PERCENTAGES OF STUDENTS WHO GAVE CERTAIN REASONS FOR CHOOSING A PARTICULAR COLLEGE

REASON	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life- Career (90)	Non-Life Career (41)			
High quality of in- struction	46.6	39.0	+7.6	9.3	0.8
Location of institution ..	22.2	49.7	-27.5	2.8	9.8
Institution offers desired courses	20.0	19.7	+0.3	10.5	0.03

students. Only one difference, that associated with the reason "Location of institution" was found to be statistically significant. This difference was in favor of the non-life-career group. Clearly, these findings show no superiority for the life-career students in the matter of formulating what the writers quoted consider reasoned decisions as to which colleges they should attend.

V. THE GROUPS COMPARED AS TO ADJUSTMENT

The importance and measurement of adjustment. It has been observed that "Nothing is more important in the work of the school than that pupils learn to make satisfactory life adjustments."²⁰ The truth of this statement cannot be seriously questioned, for it expresses what may be considered one of the most important purposes of education. Here, then, is suggested a criterion which should be recognized in the present study.

Since the occupations or life-career course is presumably designed to provide help to students in meeting certain critical situations, it follows that one might reasonably expect individuals who had had the course to exhibit fewer evidences of maladjustment than might be expected to occur among students who had not had the course. In order to discover whether or not the life-career courses studied had had any appreciable effect in facilitating the adjustment of students,

²⁰ Symonds, Percival M., and Jackson, C. E. "An Adjustment Survey," *Journal of Educational Research*, XXI, p. 326 (May 1930).

the Symonds-Block Questionnaire,²¹ an adjustment test of some one hundred five-response items, was administered to all students who participated in the present investigation. This test is designed to measure the adjustment of the student (how he feels: whether happy and satisfied, or unhappy and dissatisfied) toward his subjects of study and other activities, toward his teachers, toward other students, and toward other items or factors in his environment.

Differences between adjustment scores of two groups not significant. Mean adjustment scores for the boys, the girls, the students of lower mental ability, the students of higher intelligence, and for the total number of students are reported for the life-career and non-life-career groups in Table XXXIV. Before turning to an examination of this table, it should be pointed out that a high score on the Symonds-Block test is indicative of good adjustment, and vice versa.

TABLE XXXIV

MEAN SCORES MADE BY STUDENTS ON THE SYMONDS-BLOCK
STUDENT QUESTIONNAIRE

	Group		Differ- ence	Sigma of Differ- ence	Ratio
	Life Career (391)	Non-Life Career (250)			
Boys	367.2	366.7	+0.5	4.1	0.1
Girls	367.9	373.4	—5.5	5.0	1.1
Students below 100 I.Q.	365.2	370.7	—5.5	5.8	0.9
Students above 99 I.Q.	370.3	371.5	—1.2	3.3	0.4
Total	367.9	369.1	—1.2	2.9	0.4

A scrutiny of the data of this table (XXXIV) will reveal no difference sufficiently large to be considered statistically significant. Rather, all may be regarded as negligible in size. Of these small differences all except one, that for the boys, are indicative of higher adjustment scores made by non-life-career students. No mean score reported for any group of senior high school students was lower than 365.2 and none exceeded 373.4, a total range of less than 9 points.

²¹ For a description of the Student Questionnaire and data relative to its validity and reliability see "Manual of Directions for Student Questionnaire," Bureau of Publications, Teachers College, Columbia University.

These findings would appear to support the observation that the experiences provided through the life-career courses included in this study had apparently had little or no effect in facilitating the adjustment of students in those areas covered by the test employed. Further, it can be demonstrated that the students of one sex were about as well adjusted as were those of the other, and that the adjustment of students on the two levels of intelligence reported was closely comparable. No difference between differences in mean scores was sufficiently large to yield a ratio greater than 0.9 when divided by its standard error.

VI. SUMMARY OF FINDINGS FROM COMPARATIVE STUDY OF LIFE-CAREER AND NON-LIFE-CAREER GROUPS

Cautions to be observed in interpreting the findings. Of the various considerations which should be kept in mind as the findings of this study are reviewed in summary and examined for their implications, two are perhaps of sufficient significance to merit mention at this point. Probably the most critical of the two to which attention will be directed is that concerning the validity and reliability of the tests and questionnaires used. Obviously, the data of measurement reported can be regarded as meaningful only to the extent that the tests and other techniques of measurement employed were valid and reliable instruments of measurement. Further, the fact that the comparisons reported were all drawn from but two schools in one city-situation should be carefully weighed for whatever implications it may afford before the findings of the study are accorded acceptance.

Findings associated with information of students. The two groups of students made closely similar scores on the Kefauver-Hand Test of Occupational Information. Although a slight advantage for the life-career group might perhaps be inferred from the chance difference in mean score reported in its favor, the only conclusion warranted by the findings is that the students who had had the life-career course were not appreciably better informed relative to the items included in the test than were those in the non-life-career group. This suggests that the occupations or life-career course as taught in the two schools during the three years covered by the present study can not be justified on the ground that it imparts occupational

information of the type covered by the test employed. This observation is especially pertinent for boys and for students in the lower levels of the intelligence distribution.

When the two groups were compared on the basis of the proportions indicating certain types of information (nature of the work, requirements of the occupation, rewards, etc.) as desirable bases for choosing an occupation, a slight advantage was found for the students who had had the occupations or life-career course. In other words, of the two groups, the life-career students were apparently somewhat better equipped with a knowledge of the items which it is generally believed should be considered in making an intelligent vocational choice. It should be pointed out, however, that the evidence on this point is quite inconclusive.

On the Kefauver-Hand Test of Information Relative to False Guidance only a very small and consequently chance difference in favor of the life-career-group was revealed. Apparently, within the limitations of the test employed, the courses studied had no appreciable effect so far as the acquisition by students of information relative to false or pseudo-guidance is concerned.

* A difference in favor of the life-career group too small to be regarded as statistically significant was observed between the mean scores on the Kefauver-Hand Test of General Educational Information, a test covering such materials as those associated with the main purposes of instruction in various fields of learning, relationships between various types of school activities and certain lines of occupational endeavor, general facts relative to college entrance practices, general information about the nature and importance of high school training, etc. The negligible difference between the mean scores for the two groups may be regarded as evidence that the training received in the occupations or life-career courses studied did not result in any appreciable accumulation of information concerning such items of general educational information as were contained in the test employed.

Analysis of the responses set down in sections of the Kefauver-Hand Questionnaire designed to discover the extent to which students were informed of the names of the various curriculums offered in

their respective schools and of the chief purposes for which these curriculums were provided revealed no statistically significant difference in favor of either group. All but one of the ten chance differences thus revealed, however, were indicative of slightly superior performance on the part of the life-career group.

A real difference in favor of the life-career group was discovered when the students were compared on the basis of the extent to which they were accurately informed concerning the pre-requisites for certain high school subjects of study.

Students who had had the life-career or occupations course were, if anything, less well informed than the non-life-career group concerning the names of the subjects required for graduation from their respective high schools. As one might infer from this observation, the difference noted, though too small to be regarded as due to the operation of other than chance factors, was in favor of the non-life-career group.

Closely similar mean indices of accuracy and completeness of knowledge relative to the counseling services available in the students' respective high schools were observed for the two groups of students. In other words, the occupations or life-career courses studied in the present investigation apparently did practically nothing not duplicated by other experience or experiences in informing students of the counselling services available to them.

Real differences reflecting superior performances on the part of life-career students were revealed when the groups were compared on the bases of accuracy and completeness of information concerning the names of school subjects giving training related to (1) certain representative civic and social problems and (2) to certain representative leisure-time pursuits. These findings may be regarded as evidence in support of the observation that the life-career or occupations courses studied apparently provided instruction which led students to consider the relationships of the various high school offerings with the two important areas of interest and endeavor suggested.

The last two findings to be mentioned in this section, both associated with real differences in favor of the non-life-career course, probably reflect the training afforded in the ninth grade general

science course (it will be remembered that none of the life-career group had had this course, while all of the students who had not elected the occupations course had been enrolled in it). The findings to which reference is made at this point are those concerning the relative accuracy and completeness of information possessed by the two groups of students concerning (1) the names of the school health workers and (2) the types of health service available to students.

Findings associated with plans of students. Although a larger proportion of the life-career than of non-life-career students reported a vocational choice, the difference between the percentages so reporting was too small to be considered statistically significant. Nearly three-fourths of the life-career students reported the selection of their respective intended occupational destinations, while slightly less than seven-tenths of the other group reported such a choice. In both groups, larger proportions of girls than of boys had some definite occupation in mind. It is probably safe to conclude that the experiences of the occupations courses studied had little effect either in causing students to make a more or less definite occupational choice, or in deterring them for making such a selection.

Likewise, differences too small to be regarded as due to the operation of other than chance factors were observed between the percentages of students in the two groups who planned to graduate from high school, who were undecided about their plans in this particular area, or who planned to drop out of school before graduation. Obviously, the conclusion is justified that the life-career or occupations courses studied had not been effective in conditioning the thinking of students concerning the desirability of completing high school, or the opposite.

A statistically significant difference in favor of the life-career group was revealed when the percentages of students who reported the choice of subjects of study for the following year were compared. Proportions slightly in excess of nine-tenths and three-fourths, respectively, reported that such choices had been made. On the basis of this finding it would appear that the experiences of the occupations course had been effective in stimulating students to select their formal educational activities for the ensuing year.

Only a very slight difference, and that in favor of the non-life-career group, was observed, however, between the proportions of students who indicated that extra-curricular activities had been decided upon for the following year. Slightly more than a third of both groups reported such a choice. These observations lead one to suspect that neither in the life-career course nor in any other situation was it very effectively demonstrated to the students in the two schools studied that extra-curricular activities afford opportunities for important types of trainings and that they should be chosen on the basis of the potential values inherent in them.

A large and statistically significant difference in favor of the non-life-career group was observed when the percentages of students who had chosen leisure-time activities for after-school life were compared. Approximately two-thirds and slightly more than four-fifths, respectively, of the students in the two groups reported such choices. From this finding one may rather safely infer that no very effective, if any, consideration was given in the life-career courses studied to the desirability of selecting leisure-time pursuits in time to utilize the opportunities for training for such activities afforded by the offerings, both curricular and extra-curricular, of the high school.

No difference of any significance was noted between the proportions (slightly less than a third for both groups) of students who reported that health activities had been chosen for after-school life. This observation suggests that the students of both groups had not been very effectively impressed by any school or other experience with the desirability of projecting plans of this type.

A somewhat larger proportion of life-career than of non-life-career students reported a decision to attend college. The difference between the percentages so reporting (40.2 and 34.0, respectively), however, was too small to be considered statistically significant. When the groups were compared on the basis of the percentages who had chosen a particular college or university, however, a real difference in favor of the life-career students was noted. This last finding would suggest that the attention of the college bound life-career students had been somewhat effectively directed to the desirability of selecting a definite college or university.

That the experiences of the life-career course apparently did not cause students on the lower levels of ability to abandon their plans to attend college may perhaps be inferred from the findings that a somewhat larger proportion of life-career students with intelligence quotients below 99 planned to continue their formal education beyond high school than was observed for the other group.

Findings associated with the nature of the reasons given by students for certain plans and decisions. Only chance differences are to be observed between the percentages of the students with occupational choices in the two groups who reported each of a number of reasons for their respective choices. There is here afforded no evidence for believing that the instruction and experiences provided in the occupations courses studied in the present investigation had any appreciable effect upon the students in leading them to formulate more reasoned occupational choices.

Contemplation of the reasons given by students for planning to graduate from high school and of the percentages in each group who indicated each reason does not lead to any conviction that the life-career courses studied provided either instruction or experiences of a type which gave the students enrolled in them any advantage over the non-life-career group in coming to a fuller appreciation of the probable values associated with high school graduation.

When the percentages of students who gave each of various reasons for choosing a particular course of study or curriculum were compared for the two groups, only one statistically significant difference was revealed. This solitary real difference was associated with the reason "To prepare for an occupation." This finding would support the observation that the instruction and experiences of the life-career courses studied probably made the students more conscious of the vocational objectives served by the various courses of study.

A comparison of the percentages of students who listed each of the various reasons given for deciding to go to college yields no data which will support a belief that the life-career students were in any way better prepared to make an intelligent decision with regard to the question of whether or not to go to college than were those who had not had the occupations course.

Likewise, no evidence in support of the life-career course can be found in the data yielded by a comparison of the proportions of students who gave each of the various reasons mentioned for the choice of a particular college or university.

Findings associated with the adjustment of students. The mean scores made by life-career and non-life-career students on the Symonds-Block Student Questionnaire, an adjustment test, were closely identical (life-career, 367.9; non-life-career, 369.1) and, consequently, reveal no appreciable superiority for either group.

Findings of present study do not warrant conclusion that life-career course cannot be justified. While it is true that only a relatively small proportion of the comparisons reported resulted in statistically significant differences in favor of the life-career group, one should not jump to the conclusion that the life-career or occupations course can not be justified. Such a decision might perhaps be warranted only if similar findings were found in a study embracing a much larger number of school-situations and employing techniques of measurement of unquestioned validity and reliability. Further, it is not improbable that the effects of the course may make themselves felt in the vocational and other life-experiences of the individual years after graduation from high school. Clearly, a careful, comprehensive follow-up study in which former students would be compared on such items as vocational adjustment, progress in occupational endeavor, etc., must be made before it can be said that data bearing on the effectiveness of the occupations or life-career course have been more than partially determined. The present study has brought together only information on certain of the effects of the course during the period of from one to three years after its completion.

Data of present investigation suggest need for improved program. It may safely be said that the findings of the present study yield unequivocal indications of need on the part of all students, both life-career and non-life-career, for the important types of guidance services which the life-career course is presumably designed to provide. It could not be seriously urged that the students who cooperated in the investigation were at all adequately informed of occupational conditions and other related facts. They were inadequately informed of the false claims advanced by phrenologists, physiognomists, character

analysts, and the like. Nothing approximating a satisfactory grasp of the various items of educational information discussed in this volume was evidenced by either group. Neither the life-career nor the non-life-career students had typically formulated to any satisfactory degree the various types of plans which are more or less commonly regarded as necessary to the most intelligent utilization of the opportunities for training afforded by high school. There was little evidence that students had made choices and decisions for reasons which would be satisfactory to guidance workers.

All of these observations suggest that a far more effective guidance service should be provided. Numerous carefully controlled experiments must undoubtedly be undertaken to discover what techniques are effective and to determine the conditions under which each of the more promising procedures thus revealed is most fruitful of the results desired by guidance workers. Clearly, if the evidence of the present study be accepted, it is apparent that secondary school students need not less but more guidance service.

VITA

Harold Curtis Hand was born in Piper City, Illinois, on January 5, 1901. He received his elementary school training at Valparaiso, Indiana, and at Benson, Minnesota. He graduated from the Lakota, North Dakota, High School, in 1918. He received his B.A. degree from Macalester College, St. Paul, Minnesota, in 1924 and his M.A. degree from the University of Minnesota in 1930. He served as principal of the high school at Monticello, Minnesota, and at Thief River Falls, Minnesota, from 1924 to 1930. From 1930-1932, he was a part-time assistant in secondary education at Teachers College. In 1932-33 he served as a part-time instructor in secondary education at that institution. From 1931-1933 he was associated with Professor Grayson N. Kefauver as assistant director of an investigation of outcomes of guidance made possible by a grant from the Carnegie Corporation through the Carnegie Foundation. He is now under appointment as Assistant Professor of Education at Stanford University.

